

FORTIETH ANNUAL REPORT

OF THE

DEPARTMENT OF MARINE AND FISHERIES

1907.

MARINE

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OTTAWA

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EXCELLENT MAJESTY

1907

[No. 21—1908.]

To His Excellency the Right Honourable SIR ALBERT HENRY GEORGE, EARL GREY,
VISCOUNT HOWICK; BARON GREY OF HOWICK; A BARONET, G.C.M.G., &c., &c.,
&c., &c., Governor General of Canada.

MAY IT PLEASE YOUR EXCELLENCY:

I have the honour to submit herewith, for the information of Your Excellency and the Parliament of Canada, the Fortieth Annual Report of the Department of Marine and Fisheries, Marine Branch.

I have the honour to be,

Your Excellency's most obedient servant,

LOUIS-PHILIPPE BRODEUR,

Minister of Marine and Fisheries.

DEPARTMENT OF MARINE AND FISHERIES,

OTTAWA, October, 1907.

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REPORT

OF THE

DEPUTY MINISTER OF MARINE AND FISHERIES.

To the Honourable LOUIS PHILIPPE BRODEUR,
Minister of Marine and Fisheries.

SIR,—I have the honour to report on the transactions of the Marine Branch of this department for the nine months ended March 31 last.

The demand for increased aids to navigation has continued, and as far as possible, new aids have been established and improvements made, in many instances, to the aids formerly existing. The result, on the whole, has therefore been a reduction of the dangers to navigation in the waters of the Dominion.

The maintenance of the work in the ship channel in the St. Lawrence river and the government shipyard at Sorel increased the necessity for new steamers, dredges, other plant and equipment.

The great variety of the public service, embraced within the operations of the department, is shown by the following general subdivisions of the Marine Branch alone.

THE GENERAL SUBDIVISIONS OF THE MARINE BRANCH.

The construction of lighthouses and fog-alarms.

The maintenance of lights, gas buoys and other buoys.

The lighthouse board, which decides the necessity for aids to navigation.

The hydrographic surveys.

The tidal surveys.

The ship channel St. Lawrence river and Sorel works.

Meteorological and magnetic service.

Investigations into wrecks.

Board of steamboat inspection.

Cattle shipments inspection.

Wireless telegraph service.

Signal service.

Life saving service.

Marine hospitals.

Submarine signalling.

Shipping under the Merchants' Shipping Act.

Legislation and administration of laws relating to the Department of Marine and Fisheries.

Humane service in connection with seamen.

Wrecking plant subsidized.

Winter communication.
Removal of obstructions to navigation.
Examination of masters and mates, and issuing certificates.
Naval militia.
Pilotage.
Government of ports and proclaiming of harbours in the Dominion.
Control of government wharfs.
Dominion steamers, Marine and Fisheries.
Hudson bay navigation.

EXPENDITURE.

The expenditure for the nine months ending March 31 last, was as follows—

LIGHTHOUSE AND COAST SERVICE.

Maintenance of lights..	\$ 842,820 66
Construction of lights..	1,159,906 40
	<hr/>
	\$2,002,727 06
	<hr/>
Appropriation for maintenance and construction.. . .	\$2,076,150 00
Deduct expenditure..	2,002,727 06
	<hr/>
Expenditure less than appropriation..	\$ 73,422 94
	<hr/>

OCEAN AND RIVER SERVICE

Appropriation..	\$ 712,744 75
Expenditure..	669,717 04
	<hr/>
Expenditure less than appropriation..	\$ 43,027 71
	<hr/>

HYDROGRAPHIC SURVEYS—SCIENTIFIC INSTITUTIONS AND ST. LAWRENCE RIVER SHIP CHANNEL.

Appropriation..	\$1,056,512 50
Expenditure..	785,698 02
	<hr/>
Expenditure less than appropriation..	\$ 270,814 48
	<hr/>

MARINE HOSPITALS—STEAMBOAT INSPECTION—CIVIL GOVERNMENT.

Appropriation..	\$ 159,075 00
Expenditure..	154,427 70
	<hr/>
Expenditure less than appropriation..	\$ 4,647 30

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REORGANIZING SYSTEM OF BOOKKEEPING TO ASSIMILATE WITH ALL BRANCHES OF DEPARTMENTS
THROUGHOUT THE DOMINION.

Appropriation..	\$ 25,000 00
Expenditure..	25,000 00
<hr/>	
Total appropriation..	\$4,029,482 25
Total expenditure, Marine Branch..	3,637,569 82
<hr/>	
Expenditure less than appropriation..	\$ 391,912 43
<hr/>	
Total expenditure, Marine Branch..	\$3,637,569 82
Total expenditure, Fisheries Branch..	693,685 65
<hr/>	
Total expenditure of department..	\$4,331,255 47
<hr/>	

The fisheries expenditure is merely added to show the total expenditure of the department, and has no connection with this report.

The expenditure cannot be compared with the expenditure of the previous fiscal year, as this report only covers the nine months ending March 31 last.

LIGHTHOUSE SERVICE.

The lighthouse service of the Dominion is divided as follows:—The Ontario division, embracing all lights from Montreal westward to the Northwest Territories; the Quebec division, extending below Montreal and including the St. Lawrence river from Platon, and the Gulf of St. Lawrence and strait of Belle Isle; the Montreal division, including the St. Lawrence river from Montreal to Platon; the Nova Scotia division, including St. Paul's island, Cape Breton, Sable island and Cape Race, Newfoundland; the New Brunswick division, the Prince Edward Island division and the British Columbia division, each including lights within the provincial boundaries.

The several districts, with the exception of the district above Montreal, are in charge of agents who receive instructions from the department and report annually, in addition to communicating with the department, in connection with all matters relating to their agencies.

The total number of light stations and lightships in the Dominion is 901, and lights shown, 1,145; the number of steam whistles, fog-horns, bells and guns, 122; the number of lightkeepers and engineers of fog-alarms with masters of lightships is 908.

The report of the chief engineer relating to lighthouse construction, repairs, tidal surveys, &c., contains detailed information. The principal repairs, changes and improvements at existing stations are referred to in his report, also new aids to navigation. The work done at fog-alarm stations in connection with steam whistles, compressed air horns and explosives, is dealt with under the proper headings. Information is also given respecting the extent of repairs and some account of the repairs in detail under the head of the station.

During the past year 62 light stations were established in all, and 9 fog-alarm stations, 29 buildings were erected at existing stations, and 4 fog-alarm buildings were erected at existing stations.

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The appointment of district engineers, referred to last year, in the report of the chief engineer, has been found to insure greater promptness in making inspections and efficiency in carrying out the work of construction and repairs.

The report of W. P. Anderson, C.E., &c., chief engineer, forms Appendix No. 1.

ILLUMINANTS AND ILLUMINATING APPARATUS.

The information in detail relating to illuminating apparatus will be found in the report of the commissioner of lights which forms Appendix No. 2.

The new hyperadial light at Cape Race was put in operation on the first of October, and this is the largest light apparatus in either North or South America. It was manufactured by Chance Bros. & Co., and is carried by a reinforced concrete tower. The inclosing lantern is 17 feet in diameter.

The lights in strait of Belle Isle have been materially improved by the installation of a second order double flashing light at Cape Bauld and a third order triple flashing light at Cape Norman. The light at Greenly island has been improved by the installation of a second order single flashing light, and it is the intention of the department to strengthen the Belle Isle southwest lights and make them occulting. The material has been available for this work, but owing to lack of transportation facilities it could not be installed this season.

A very fine single flashing light of two panels is available for Heath Point, Anticosti. The work of raising the tower at this station will not be completed before the close of navigation this year, but the light will be put into operation before opening of navigation next year.

A first order double flashing light has been put in operation at Fame Point, and the lighting of the south shore of the St. Lawrence between Fame Point and Father Point is proceeding.

The lighthouse apparatus which the department has recently installed is the best of its kind that can be procured.

The gas buoy service of the department has been extended throughout the past year, particular attention has been given to placing lighted signal buoys in the Bay of Fundy for the winter navigation.

The department has been seriously interfered with by lack of transportation facilities for carrying out its work. The buildings of the three submarine signal stations, viz., Louisburg, Yarmouth and Negro Head are completed and the machinery is installed, but owing to inadequate transportation facilities the cables have not been laid.

The establishment and successful operation of the lighthouse depot at Prescott has been of the greatest assistance to the department in providing at all times on short notice material for the improvement of the lights and a trained staff for carrying out its work. A new machine shop should be built to take care of the increasing work at this depot.

Petroleum has largely been used in the lighthouses as in former years. A more extended use of vapour lights has been made in the lighthouses and acetylene has been used in the gas buoys.

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OIL FOR USE OF LIGHTHOUSES.

The department entered into a contract with the Canadian General Supply Company, Ltd., of Montreal, for supplying lighthouse oil required for the season of 1907.

The specification upon which the contract was based required the oil to weigh at 62° Fahr., not less than seven pounds nor more than eight pounds per gallon, and to withstand a flash test of 115° Fahr.

Some oil was also purchased in New York, for use in the dioptric lights. The oil obtained from New York was made according to a specification prepared by the American Lighthouse Board.

BUOYS AND BEACONS.

As usual the buoy service has received careful attention by the department, the numerous bays, inlets, rivers, lakes, harbours and other navigable waters constantly require supervision and addition of aids to navigation. The number of large buoys has constantly increased, but in many instances combined gas and whistling buoys and combined gas and bell buoys, have been substituted for the old type of automatic whistling buoys and the old type of bell buoys. This has of course caused a large increased expenditure, but this increased expenditure has been amply justified by the superior aid to navigation which the combined buoys affords. The expenditure for the nine months ended March 31 amounted to \$110,544.84.

The districts now buoyed number about 375 and the buoys number about 4,250. A record of the names of the shoals, dangers, reefs and various points in channels, harbour, &c., where buoys are placed is carefully kept; this enables the department to immediately locate the buoys when any reference is made to them in the correspondence.

The contract system has been found to work most economically, but not always as efficiently as desirable, owing to neglect on the part of some contractors to carry out the conditions of their contracts; in the majority of instances the contracts are immediately under the supervision of departmental officers, whose duty it is to report to the department any neglect of work on the part of contractors.

The contracts and correspondence relating to maintenance of buoys, involve an immense amount of detail work and is attended to by the contract branch in charge of Mr. W. W. Stumbles.

There are now about 210 contracts. These contracts are generally made for a period of three years. The contractors are paid semi-annually upon the certificate of the superintending officer. There are, however, some districts not under contract, the work being attended to by the harbour masters. In these cases it has been found more advantageous to place the work immediately in the hands of these officers.

A large number of whistling, combined gas and whistling, combined gas and bell, gas, bell and other iron buoys are maintained along the coast of the several provinces, by Dominion steamers, particularly on the Nova Scotia, New Brunswick and British Columbia coast. These buoys are called coast buoys to distinguish them from the harbour buoys. The cost of maintaining and placing these buoys by the steamers, is not charged directly to the buoy service, but is included in the cost of maintenance of the steamers, which frequently perform the double duty of attending to lighthouses and the coast buoy service on the same trip.

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The expenditure in connection with the buoy service for the nine months ended March 31, 1907, was as follows:—

Above Montreal.. . . .	\$10,791 57
Quebec.. . . .	48,002 59
New Brunswick.. . . .	16,272 45
Nova Scotia.. . . .	26,882 24
Prince Edward Island.. . . .	3,096 42
British Columbia.. . . .	5,499 57
	<hr/>
	\$110,544 84

The number of gas buoys maintained in the Dominion, showing in general, occulting lights, are as follows: in the Quebec agency, 24; on the St. Lawrence river between Platon and Montreal, 57; between Montreal and Kingston, 39; Lake Erie, 2; Georgian bay, 14; Goderich, 1; River Thames, 1; Southampton, 1; Lake Nipissing, 1; Port Arthur and Fort William, 3; in Nova Scotia, 17; New Brunswick, 25; Prince Edward Island, 5; and British Columbia, 8.

The coast buoy service maintained by the Dominion steamers on the coast of Nova Scotia consists of 18 whistling buoys, 3 gas buoys, 29 bell buoys and 182 steel can and conical buoys, 12 combined gas and whistling buoys, and 2 combined gas and bell buoys.

In the New Brunswick agency there are maintained in the same way 5 whistling buoys, 25 gas buoys, 15 bell buoys and 110 steel can and conical buoys.

The coast buoys maintained by the Prince Edward Island agency number 13, as follows: 5 gas buoys, 3 whistling buoys, 1 bell buoy, and 4 steel can and conical buoys.

In the province of Quebec there are 81 gas buoys, 1 bell buoy and 1 whistling buoy, and 245 unlighted buoys maintained by Dominion steamers.

The coast buoy service of British Columbia is performed by the Dominion steamer *Quadra*. There are 8 gas, 3 whistling, 3 bell, and 37 can and conical buoys. The service at the mouth of the Fraser river is performed by the Public Works steamer *Samson*, employed for the buoy service of the department.

The steamer *Shamrock* is constantly employed in the buoy service on the St. Lawrence between Montreal and Platon, and the steamer *Scout* between Montreal and Kingston: the latter steamer attends to the gas buoys above Montreal on the St. Lawrence river. The steamer *Druid* performs the buoy service below Quebec and attends to the gas buoys in the Quebec district.

DOMINION STEAMERS.

The report of Commander Spain which forms Appendix No. 4 to this report contains a list of the steamers under the control of the department in the various services, namely, lighthouse and buoy service, winter communication, hydrographic service and fisheries protection.

The steamer *Stanley* which has been employed in the winter communication service between Prince Edward Island and Nova Scotia since 1887, was sent to Scotland in the spring of 1907 to be overhauled and repaired by the builders of that steamer. New boilers were put in her and the steamer thoroughly strengthened by putting in intermediate frames.

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A contract was entered into for the construction of a steamer for the hydrographic service on the British Columbia coast. This steamer is being built under contract by the British Columbia Marine Railways Company of Victoria, B.C. Tenders for the construction of the steamer were invited in Great Britain and Canada. The plans were prepared by a marine architect specially employed, who prepared the plans in Ottawa in the office of the hydrographer under the direction of that officer.

MERCHANT SHIPPING.

The total number of vessels remaining on the register books of the Dominion on December 31, 1906, including old and new vessels, sailing vessels, steamers and barges, was 7,512, measuring 654,179 tons register tonnage, being an increase of 187 vessels, and a decrease of 15,646 tons register, as compared with 1905. The number of steamers on the registry books on the same date was 2,810, with a gross tonnage of 375,263 tons. Assuming the average value to be \$30 per ton, the value of the registered tonnage of Canada, on December 31 last, would be \$19,625,370.

The number of new vessels built and registered in the Dominion of Canada during the last year was 397, measuring 21,741 tons register tonnage. Estimating the value of the new tonnage at \$45 per ton, it gives a total value of \$978,345 for new vessels.

A comparative statement follows giving the tonnage of the Maritime States of the world.

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STATEMENT showing the Tonnage of each of the Maritime States of the World, compiled from the Répertoire Général for 1906-1907.

Nationality.	Steamers.	Gross Tonnage of Steamers.	Net Tonnage of Steamers.	Sailing Vessels.	Net Tonnage of Sailing Vessels.	Total Net Tonnage.
British.....	8,675	16,195,383	9,923,944	6,590	1,818,728	11,742,672
American.....	933	1,768,119	1,197,459	3,811	1,504,234	2,701,693
German.....	1,648	3,464,003	2,124,180	1,315	524,182	2,648,362
Norwegian.....	1,097	1,168,117	725,894	1,628	757,908	1,483,802
French.....	917	1,283,712	735,419	1,710	529,686	1,265,105
Russian.....	656	772,375	471,093	3,458	567,762	1,038,855
Italian.....	380	777,580	493,963	1,501	489,580	983,543
Japanese.....	734	984,524	623,810	1,325	167,010	790,820
Swedish.....	805	637,203	435,288	1,568	265,048	700,336
Canadian.....	*	*	*	*	*	*
Dutch.....	434	706,241	443,262	653	83,169	526,431
Spanish.....	469	677,483	423,566	550	84,380	507,946
Danish.....	469	584,883	357,426	981	121,489	478,915
Greek.....	220	355,885	221,946	883	180,113	402,059
Austrian.....	287	609,799	380,151	99	16,577	396,728
Turkish.....	125	113,432	70,800	902	186,690	257,490
Brazilian.....	225	154,197	95,969	306	65,539	161,508
Belgian.....	146	170,315	114,257	8	3,778	118,035
Argentine.....	180	124,021	73,106	163	43,817	116,923
Chilian.....	70	86,336	54,357	91	42,177	96,534
Portuguese.....	55	59,354	36,652	270	46,744	83,396
Cuban.....	46	54,067	34,680	119	11,315	45,995
Uruguayan.....	33	25,877	16,104	65	25,902	42,006
Chinese.....	45	61,202	39,615	8	1,447	41,062
Peruvian.....	6	8,780	5,687	53	21,943	27,630
Mexican.....	35	23,312	14,141	48	9,173	23,314
Roumanian.....	27	29,939	15,997	19	3,408	19,405
Honduras.....	9	16,310	10,400	1	257	10,657
Egyptian.....	21	14,472	8,031	8	2,480	10,511
Nicaraguan.....	2	1,753	420	8	4,996	5,416
Montenegrin.....				22	5,077	5,077
Venezuelan.....	9	3,951	2,096	19	2,819	4,915
Haitian.....	6	2,662	1,556	11	2,056	3,612
Bulgarian.....	5	4,328	2,629	1	110	2,739
Sarawak.....	4	3,597	2,261	1	347	2,608
Arabian.....				3	2,484	2,484
Siamese.....	7	3,359	1,918	3	545	2,463
Colombian.....	1	881	457	5	1,388	1,845
Guatemala.....				7	1,770	1,770
Corean.....	3	2,086	1,561			1,561
Dominican.....				9	1,246	1,246
Persian.....	2	1,328	885	1	107	992
Tunisian.....	2	584	304	3	615	919
Hawaiian.....				4	804	804
Liberian.....				2	686	686
Bolivian.....				1	607	607
Costa Rican.....	2	528	313	1	233	546
Panaman.....	1	748	454			454
San Salvador.....				3	454	454
Zanzibar.....	2	508	308			308
Paraguay.....	1	282	232			232
Congo.....	2	599	200			200
Ecuador.....				2	199	199
Crete.....				1	111	111
Servian.....	1	264	102			102
Gibraltar.....				1	94	94
Unknown.....	6	8,560	5,464	20	6,966	12,430
Total.....	18,803	30,962,939	19,168,357	28,161	7,608,250	26,776,607

* Included in British.

INVESTIGATIONS INTO WRECKS.

Investigations were held into the cause of wrecks and other casualties in the river and Gulf of St. Lawrence, on the Atlantic coast, British Columbia coast and other waters of the Dominion. There were eight investigations. The St. Lawrence route was practically free from accidents during the past season, only one of importance occurred, namely, the steamship *Montrose*, which went ashore on Red island reef.

The Shipping Casualties Act was amended during the last session of parliament. A wreck commissioner has been appointed to hold investigations under that Act in all

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parts of the Dominion. An investigation may be ordered into any casualty, or into the conduct or incompetency of any master, mate, pilot or engineer when considered necessary. Two permanent assessors have been appointed, for the ports of Montreal and Quebec. The term of the appointment of these officers is three years, which may be lengthened or shortened.

A Canadian patrol boat was put in commission at the Lime Kiln Crossing, in the Detroit river, for the purpose of regulating the passage of vessels up and down to prevent collisions and accidents. For this purpose a set of rules and regulations were drawn up. The patrol boat is on duty day and night and the officer in charge reports every day to the department, giving the names of vessels that pass up and down and their nationality. If there are any violations of the regulations by United States vessels the matter is reported to the United States authorities in Detroit.

The report of Commander Spain, which forms Appendix No. 3 to this report, contains detailed information on the subject.

ST. LAWRENCE RIVER SHIP CHANNEL.

While every effort has been made to urge forward the work, it is necessary to take great care to so arrange the operations that navigation is not interrupted or dredge vessels put in more than usual danger.

The report of 1906 contained general information up to the close of the season. The greater part of this information is therefore not repeated in this report, but the usual description of quantities and cost of the dredging work is given.

As reported last year the thirty-foot channel from Montreal to Batiscan was completed. This gives a depth, by taking advantage of the tides, of thirty feet from Montreal to the sea at the lowest stages of the river level.

The commencement of dredging operations for the improvement of the ship channel below Quebec is a new step in the extension of navigation.

The dredging plant will now be concentrated on the work of obtaining a greater width in Lake St. Peter and the tidal parts of the river, as well as the full depth of 30 feet at low tide. About an equal quantity of work requires to be done below and above Quebec.

In the last annual report the details of the organization for the channel improvements below Quebec, will be found, giving details of the purchase of a suction hopper dredge, as well as the actual commencement of dredging operations.

An appropriation for the construction of a special spoon dredge for Cap à la Roche, having been made by parliament, plans were ordered, and this vessel is to be built at the government works at Sorel.

The steamer *Lady Grey*, a powerful and well equipped ice-breaking, surveying and sweeping tug, was built in Great Britain and arrived in Canada late in the season of 1906. This vessel, immediately on her arrival, was able to render assistance to the *Athenia*, a Donaldson liner. The *Athenia* was relieved from a very dangerous position at Cap à la Roche and prevented from being wrecked or very seriously damaged, by the timely aid of the *Lady Grey*. The vessel with its large cargo was estimated to have a value of \$1,000,000, and was floated by the aid of the *Lady Grey* before any serious damage had been done to the ship's bottom, and she proceeded on her voyage to Glas-

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gow without more delay than a few hours. The owners of the *Athenia* in letters fully recognized the importance of the assistance given.

A synopsis of the total cost of the ship channel since 1851 to the end of the fiscal year, and also the number of cubic yards excavated in ten years is given in the report of Mr. F. W. Cowie, C.E., chief engineer of the ship channel, which forms Appendix No. 5.

SOREL SHIPYARD.

The Sorel shipyard has been engaged in the construction and repairs to dredges, and steamers for the ship channel work and for other government departments. Mr. G. J. Desbarats is director of the shipyard and his report forms Appendix No. 6.

The work on a sea-going hopper suction dredge for the St. Lawrence river ship channel proceeded during the fiscal year. The vessel was begun in January, 1906, and launched on December 1, of the same year. The dredge is a twin screw vessel with triple engines, and the engines were installed in January, 1907. This dredge was tested with satisfactory results at the beginning of October, 1907.

The small steamer *Verchères*, for lighthouse construction work, was built between January and July of 1906. She has been employed since her construction in carrying building material to lighthouses and lighthouse piers in Lake St. Peter and other places.

The steamer *Rouville* was constructed for the Mounted Police Department for use in Hudson bay. It was decided to use her first for inspection and survey purposes on the St. Lawrence ship channel.

In November, 1906, extensive repairs were made to the *Montcalm*. Improvements were made to the dredge *Galveston*. The bridge deck was enlarged and mess room accommodation provided.

Dredge No. 2 was renewed and fitted with a new chain of buckets for rock dredging. Dump scow No. 4 was practically rebuilt.

Extensive repairs were made to the hydrographic survey steamer *La Canadienne*. Several vessels belonging to the Public Works dredging fleet were repaired.

Improvements to the shipyard were made. The saw mill was finished and an electric motor of 100 h.p. was placed in the basement. A three-story shed 100 feet by 30 feet was built for storing stock and material. During the summer a slip was built to enable the shipyard to haul out and repair dredges of the ship channel fleet. The hauling machinery from the old slip was adapted to the new slip way. The working force at the shipyard varied from 600 to 750 men, and averaged 680.

HYDROGRAPHIC SURVEY.

Hydrographic survey parties were sent out and the work done is gathered from progress reports sent in from time to time. The time of all parties last winter was fully occupied in preparing last season's work for publication.

Eight charts of the St. Lawrence river were published; charts for Pigeon river to Thunder cape and from Thunder cape to Lamb island, on the Great Lakes, are almost ready for distribution. The following are on hand and waiting an opportune time to deliver to the engraver, Lake St. Louis and Orignaux point to Cacouna island

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on the St. Lawrence. It is hoped that all these will be on sale before the opening of navigation. A chart of the entrance to Prince Rupert harbour in British Columbia was issued and during the season of 1907 some further blue prints of additional work have been issued and work began about March 1. Captain Mosgrove has been sounding in British Columbia as far south as Lawyer island and the entrance to Skeena river.

Mr. Fred Anderson, in charge of the steamer *Bayfield*, resumed operations on Lake Superior about May 15.

Captain Irving Miles, on the steamer *La Canadienne*, began operations in the vicinity of Saguenay river.

The survey between Montreal and Quebec is almost completed. Mr. Arthur Amos is in charge of this important work.

The survey on Lake of Two Mountains in the Ottawa river began about May 7. Mr. Robert Bickerdike has charge of the survey in Lake St. Francis in the St. Lawrence river. Charts will soon be available for Lake St. Francis and Lake St. Louis.

The report of W. J. Stewart, hydrographer forms Appendix No. 7 of this report.

WIRELESS TELEGRAPHY.

There are now fifteen wireless telegraph stations on the St. Lawrence route and the Atlantic seaboard for commercial purposes, consisting of nine high power stations, which have a normal range of about one hundred and twenty-five miles, and six low power stations, which have a normal range of about sixty miles. The two new stations located at Father Point and Clark City (Seven Islands) have rendered valuable service to the shipping interests, during the past summer.

It was decided during the past year, to install wireless telegraph stations on the coast of British Columbia, to serve as aids to navigation, as well as a means of communication along the west coast of Vancouver island. These stations are now under construction and it is expected that all will be in operation before January 1, 1908.

In British Columbia the Shoemaker system will be adopted, as the wireless apparatus of that system can be used to communicate with vessels and stations irrespective of the system used by them. The cost of maintaining the Shoemaker system will be much less, as shown by the figures submitted by the different companies. The Marconi Company has not accepted the principle of inter-communication. There will be five stations which when equipped will be the most complete stations on the continent.

The Dominion government steamers *Stanley*, *Minto* and *Lady Laurier* are equipped for receiving wireless messages.

The report of Mr. C. Doutre, superintendent of government wireless telegraph stations, which forms appendix No. 8 to this report, contains a statement showing the number of messages received and sent from the different stations.

METEOROLOGICAL AND MAGNETIC SERVICE

There are now in the Dominion of Canada, Newfoundland and Bermuda, 423 stations which have been supplied with instruments by the Dominion government. The number of stations has increased from 395, the number mentioned in the last

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report, to 423. This service is under the direction of Mr. R. F. Stupart, and the work includes the issuing of daily weather forecasts, the erection of signals to indicate approaching storms, the inspection of stations by regularly appointed inspectors and instructors, and the preparation of the annual report, which is published separately from this report.

The report of Director Stupart forms Appendix 9 to this report and in it will be found the number of predictions and the percentage of fulfilment in each district during the nine months ended March 31, 1907.

WINTER STEAMERS AND ROUTES.

'STANLEY.'

The steamer *Stanley* entered upon the winter service between Summerside and Tormentine on December 13, and continued on this route until the 19th of the same month when the Straits became filled with heavy rafted ice. The steamer then proceeded to Georgetown and entered upon the Georgetown-Pictou route; she continued on this route until the end of the fiscal year, making tri-weekly trips with the C. G. S. *Minto* when practicable, with the exception of a few trips to Charlottetown.

On February 27 the *Stanley* was caught in the ice on a trip from Pictou and she did not reach Georgetown until March 4. When the steamer reached Georgetown it was found necessary to make some repairs on account of damage received in the ice-jam. The repairs were completed on March 9 and the steamer left for Pictou on the 11th of the same month, but she was again caught in the ice and had to return to Georgetown on the 14th. It was found impossible to reach Pictou until March 18.

The *Stanley* made 7 round trips on the Summerside-Tormentine route, and 32 round trips on the Georgetown-Pictou route, up to the end of the fiscal year. The earnings for freight amounted to \$4,604.07, and for passengers, meals and berths, \$3,112, making the total earnings \$7,716.07.

'MINTO.'

The *Minto* was made ready for the winter service, and started running on the Charlottetown-Pictou route on December 8, on which route she continued until the 18th of the same month, when in consequence of the large quantity of ice on this route, the steamer was transferred to the Georgetown-Pictou route. She continued on this route until May 4, 1907, making tri-weekly trips with the C. G. S. *Stanley* when practicable. The *Minto* returned to the Charlottetown-Pictou route on May 4, 1907, and continued to make tri-weekly trips on that route, in conjunction with the steamer *Stanley*, until the steamers of the Steam Navigation Company entered upon the service.

On February 25, 1907, on a trip from Georgetown the *Minto* was caught by a heavy ice-jam, in a strong gale and thick snow storm, and did not reach Pictou until March 2, and from that date until March 19 it was found impossible to reach Georgetown again, although several attempts were made. The return trip to Pictou was accomplished only on March 26.

The steamer *Minto* made 37 round trips between December 8 and March 31, 1907. The earnings for freight amounted to \$5,027.73, and for passengers, meals and berths, \$3,941.50, making the total earnings \$8,969.23.

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'MONTCALM.'

In the early part of July, 1906, the *Montcalm* made a very successful trip to Rigoulet, on the Labrador coast, about 500 miles north of Belle Isle, to bring back a party of surveyors sent there by the local government of the province of Quebec.

From December 11, 1906, the *Montcalm* made almost daily trips to Cap Rouge to prevent the formation of the ice bridge there, and succeeded until January 24, 1907, when the accumulation of ice became so great and the weather so severe that the ice bridge stuck. The ship was kept cutting the jam until February 6, and during this time a track of 800 feet was made from a little below the site of the Quebec bridge to a little above Pointe-à-Basile lower range light.

On February 14, the steamer left for Seven Islands and called at several points on the north shore to land mails and freight, she returned to Quebec on the 20th of the same month. Owing to the immense fields of heavy ice met in the river and gulf and the severity of the weather, the trip to Seven Islands was the hardest ever experienced by the *Montcalm*.

On her return to Quebec the steamer commenced the work of breaking ice below Quebec and continued at this work until March 1. Work was resumed at the Cap Rouge ice bridge on April 2, and the steamer made her way through very heavy ice from Sillery point to Pointe-a-Basile upper range light, cutting a channel 1,000 feet in width, she then left for the Gulf of St. Lawrence to assist incoming vessels in the vicinity of Cabot straits and to furnish information to vessels and shipping by Marconi wireless telegraph as to the state, location, movement and direction of the ice.

'CHAMPLAIN.'

The ice-breaking steamer *Champlain* has been employed in the ferry service between Rivière Ouelle wharf, Cap-a-l'Aigle, Murray bay and St. Irene during the whole year. This steamer encounters very much ice during the winter, and notwithstanding the difficulties and the liability of being carried out of her course by the large fields of ice, she managed to keep up the service remarkably well.

Over 7,000 passengers were carried, as well as a large quantity of freight in winter and baggage in summer; a large number of mail bags was also handled, and over 700 meals were supplied to passengers.

The total receipts for the nine months ended March 31 last amounted to \$4,845.44.

'ARCTIC.'

The steamer *Arctic* is also classed with the ice-breakers as she was purchased for the Hudson bay service and has been engaged in that service. This vessel on her last trip left Quebec on July 28, 1906, and returned to the same port on October 17, 1907.

ICE-BOAT SERVICE BETWEEN CAPES TRAVERSE AND TORMENTINE.

The ice-boat service between Cape Traverse, P.E.I., and Cape Tormentine, N.B., was opened on February 7, 1907, but it was closed again on the 9th of the same month, when the mail service was returned to the ice-breaking steamers *Minto* and *Stanley*.

On March 1, 1907, owing to the accumulation of ice in the straits and the uncertainty of the steamers making daily trips, the mail service was transferred to the

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Capes route, and the ice-boats were continued in the service until April 1, of 1907, when the mail service was again returned to the steamers and the Capes route closed.

The season of 1906-7 was exceptionally hard on the ice-boats.

Twelve boats were constantly employed in the service, while the Capes route was open, and the number of boats was sometimes increased to sixteen when the service required the extra boats. There were twenty-one ice-boats available for the service during the past season.

The expenditure in connection with this service during the nine months ended March 31, 1907, was \$6,630.96, including the cost of repairs and the wages of the superintendents and crews. The net earnings in connection with the ice-boat service amounted to \$636.59 for the season of 1906-7.

ICE-BREAKING IN THUNDER BAY.

The work of breaking ice in Thunder bay, referred to in the last annual report, has been continued. A contract for this work was awarded to the Canadian Towing and Wrecking Company of Port Arthur, Ont., and they performed the service very satisfactorily last fall. The work of breaking ice was begun about the middle of November, 1906, and carried on continuously until December 17 of the same year; all boats being enabled, not only to enter and leave the harbour without trouble, but also to go to their berths at docks, wharfs and elevators.

The contract price for breaking the ice during the fall and spring, and for removing the lightkeepers in the vicinity at the close of navigation, is \$25,000.

A report on the work performed will be found in the report of the Chief Engineer, which forms Appendix No. 1 to this report.

LIFE BOAT STATIONS.

There were on March 31, 26 life-saving stations in the Dominion of Canada, but the number will be increased to 32 in the near future. Most of these have crews that drill two or three times a month. The men are paid \$2 for each drill and an extra sum is paid when any service is rendered to shipwrecked mariners. The system of selecting the crews is by the appointment of a capable coxswain who selects his own crew at each station.

At Long Point, Lake Erie, the men are permanently stationed during the months of September, October and November at the life-saving station, which is well equipped for their accommodation and those who may be rescued. The men receive \$40 each per month, during the three months, and are paid for weekly drills during the other months of the season of navigation.

No casualties were reported where the assistance of any of the boats was required, since the last annual report was published.

Seven Beebe-McLellan surf boats are now under construction by contract in Nova Scotia, two in Ontario and four in British Columbia. Five of the boats being built in Nova Scotia are to replace old and worn out boats, one for a new station at Charlottetown, P.E.I., and one for a station at Richibucto, N.B.

A motor boat at a cost of \$10,000 is being built under contract for British Columbia.

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Experiments will also be made in employing fishermen who have motor fishing boats.

Captain McElhinney is the inspector of life-boat stations in Ontario, and attends to all the correspondence in the department with officers in charge of stations. Mr. S. C. Campbell is the inspector of life-boat stations for the maritime provinces.

A list of the life-boat stations in the Dominion forms Appendix No. 21 to this report.

EXAMINATION OF MASTERS AND MATES.

During the past year new offices for the examination of masters and mates have been established at the following places: North Sydney, N.S.; Toronto, Ont.; Collingwood, Ont., and Windsor, Ont. It is probable that, in the near future, it will be necessary to have an examiner in Port Arthur, Ont., and in Edmonton, Alta. It is also the intention to appoint an examiner at Montreal, P.Q., for foreign-going certificates. Within the present year examinations for foreign-going certificates will be held at Halifax, N.S.; Yarmouth, N.S.; North Sydney, N.S.; St. John, N.B.; Charlottetown, P.E.I.; Montreal, P.Q.; Ottawa, Ont.; Vancouver, B.C., and Victoria, B.C.

In connection with examinations, a revised edition in conformity with the Board of Trade rules and regulations, has been printed in both languages. New rules respecting the examinations for coast, inland and minor water certificates have been framed and the standard of knowledge required has been raised. The rules have been published in book form in both languages.

The close supervision of examinations has had the effect of diminishing to a minimum, violations of the Masters and Mates' Act. The chief examiner of masters and mates is Captain L. A. Demers, and his report forms Appendix No. 11 to this report.

HALIFAX DOCKYARD.

On January 1, 1907, the Imperial Government handed over H. M. dockyard for the use of the Marine Department.

The whole of the departmental staff in Nova Scotia are established in the dockyard, and the heads of the department are provided with dwellings within the dockyard.

The Dominion steamers berth at the dockyard and when possible repairs are made by the employees of the department. Machinery and forges are installed to make repairs to buoys and to perform other work. The stores of the department are kept in the dockyard.

The former residential property of the department was offered for sale by auction and sold for forty-five hundred dollars. The department, however, retaining a strip of land for departmental use.

MARINE SCHOOLS.

Lectures on navigation were given at Lunenburg, Yarmouth, North Sydney, N.S.; St. John, N.B.; Quebec, P.Q.; Toronto, Collingwood, Ont., and Victoria, B.C.

Arrangements were made for delivering lectures at Montreal and Halifax. There were no lectures given at Halifax owing to the death of the examiner. At Montreal, for some unaccountable reason no one attended the school. At the other places men-

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tioned the attendance was very satisfactory. The total attendance at the different places numbered 2,251.

The report of Superintendent L. A. Demers forms Appendix No. 22.

CERTIFICATES TO MASTERS AND MATES.

During the nine months ended March 31, 1907, 12 masters', 18 mates' and 18 second mates' seagoing certificates of competency; 88 masters' and 53 mates' coasting or inland certificates of competency; and 1 masters' coasting certificate of service, were issued.

The total amount collected in fees from applicants for examination during the nine months ended March 31, 1907, was \$2,294.50, and the amount expended on account of this service was \$5,934.16, an excess of expenditure over receipts of \$3,639.66.

The following statement shows the total receipts and expenditure on account of masters and mates since 1871:—

	Expenditure.	Receipts.
	\$ cts.	\$ cts.
For the fiscal year ended June 30, 1871.....	1,410 45	
" " 1872.....	4,312 07	1,344 00
" " 1873.....	6,466 18	4,963 00
" " 1874.....	4,520 19	2,995 00
" " 1875.....	5,696 62	2,715 00
" " 1876.....	4,672 08	2,021 87
" " 1877.....	4,050 00	1,740 50
" " 1878.....	4,249 76	1,296 50
" " 1879.....	4,250 12	1,334 50
" " 1880.....	4,253 43	1,547 00
" " 1881.....	3,888 41	1,333 50
" " 1882.....	3,965 19	1,152 50
" " 1883.....	4,021 20	1,314 00
" " 1884.....	3,909 59	9,437 50
" " 1885.....	4,324 15	2,897 00
" " 1886.....	5,245 28	2,152 00
" " 1887.....	4,855 98	2,172 00
" " 1888.....	5,060 96	3,220 80
" " 1889.....	4,381 04	2,202 00
" " 1890.....	4,117 83	2,186 00
" " 1891.....	4,225 24	2,586 00
" " 1892.....	4,363 88	2,194 00
" " 1893.....	4,116 99	2,484 00
" " 1894.....	3,721 33	2,904 04
" " 1895.....	3,758 29	3,974 50
" " 1896.....	4,062 82	2,307 50
" " 1897.....	3,536 29	3,754 00
" " 1898.....	3,335 40	4,800 00
" " 1899.....	3,568 26	4,486 50
" " 1900.....	3,750 69	4,221 50
" " 1901.....	3,720 25	4,808 24
" " 1902.....	3,305 59	5,288 52
" " 1903.....	4,968 36	5,790 50
" " 1904.....	7,761 17	4,795 00
" " 1905.....	5,884 74	4,643 85
" " 1906.....	7,068 15	5,526 00
" " 1907.....	5,934 16	2,294 50
Expenditure.....	164,732 14	114,883 32
Receipts.....	114,883 32	
Excess of expenditure over receipts.....	49,848 82	

The report of the chief examiner of masters and mates forms Appendix No. 11 to this report.

CORRESPONDENCE.

About 27,409 letters were received in the department during the nine months ended March 31, 1907. The correspondence was carefully examined and replied to

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as far as necessary. About 14,000 letters were sent out during the same period. Registered letters inclosing cheques sent out by the accountant's branch, forms, reports, circular letters and notices inviting tenders, are not included in the number of letters addressed to this department or sent out.

These forms are numerous and require special attention, as the matters to which they refer are important.

In the records branch of the department, the letters received are carefully examined, entered in the record book, placed on file, and the copy of the reply attached, so that the letters and answers can readily be seen and any subject easily followed up.

WHARFS.

The department has under its control a large number of wharfs in charge of wharfingers. These wharfs have, from time to time, been transferred to the department as they have been acquired by the government or built by the Public Works Department. Wharfingers regularly appointed, collect tolls from vessels and owners of goods who use the wharfs. Some of the piers are breakwaters to afford shelter to vessels which are moored at them.

The most valuable wharf properties are connected with the agencies of the department. The King's wharf property at Quebec accommodates the departmental steamers, quarantine steamers and public works steamers. It was found necessary to increase the accommodation at Quebec, and the department leased from the harbour commissioners a very suitable wharf adjoining the King's wharf for a term of five years at \$1,200 per annum. The marine stores, machinery and blacksmith and carpenter shops are connected with the King's wharf. Large numbers of buoys, boats and other equipment and coal for use of steamers, are stored on this wharf.

At Charlottetown extensive repairs have been made to the marine wharf during the year.

The steamers and supplies of the Nova Scotia agency have been transferred from the Marine wharf to the Halifax dock yard, which was handed over by His Majesty's Imperial Government on January 1, 1907. The accommodation for berthing steamers is much greater at the dock yard, and also the space for storing boilers and other material used in connection with the Nova Scotia agency.

A statement of wharfs and wharfingers forms Appendix No. 14 to this report.

SICK AND DISTRESSED MARINERS.

MARINE HOSPITALS.

Under the provisions of Chapter 76, revised statutes, dues of 2 cents per ton register is levied on every vessel entering any port of the province of Quebec, Nova Scotia, New Brunswick, Prince Edward Island and British Columbia, the money thus collected forming the 'Sick Mariners' Fund.' Vessels of the burden of 100 tons and less pay the duty once in each calendar year, and vessels of more than 100 tons, three times in each year.

By an amendment of this Act, passed at the session of parliament in 1887, 50-51

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Victoria, chapter 40, it is provided that no vessel, not registered in Canada, and which is employed exclusively in fishing or on a fishing voyage, shall be subject to the payment of this duty.

The receipts for the fiscal year ended March 31, last amounted to \$44,894.81 less \$190.22 refunds, making the net receipts \$44,704.59. The expenditure for the several provinces amounted \$37,362.11:

The receipts from the provinces, of sick mariners' dues, were as follows:—Nova Scotia, \$13,560.63; New Brunswick, \$9,999.40; Quebec, \$8,825.30; British Columbia, \$12,372.40; Prince Edward Island, \$137.08. The 'Sick Mariners' Act' does not apply to Ontario, and consequently no dues are collected from vessels in that province.

In the province of Quebec, the expenditure on account of sick seamen amounted to \$9,009.70. The total collections for the entire province amounted to \$8,825.30.

At the port of Quebec, sick seamen are cared for at the Jeffrey Hale and the Hotel Dieu Hospitals; a per diem allowance of \$1.20, for each seaman for medical attendance and board is made.

At the port of Montreal, sick seamen are cared for at the General Hospital and at Notre Dame Hospital, under an arrangement made by the department, by which \$1.20 per diem is paid for board and medical attendance of each seamen.

The expenditure on account of sick seamen in the province of New Brunswick for the fiscal year, amounted to \$5,319.67, and the collection of dues to \$9,999.40. Marine hospitals are maintained at Douglastown and Bathurst. At the port of St. John, sick seamen are cared for at the General Public Commissioners' Hospital under an arrangement made by the department by which \$1.20 per diem is paid for board and medical attendance of each seaman.

In the province of Nova Scotia marine hospitals are maintained at the ports of Louisburg, Yarmouth, Pictou, Sydney, Lunenburg and Point Tupper. The total expenditure on account of sick seamen in the province of Nova Scotia for the fiscal year amounted to \$13,926.07, and the receipts to \$13,560.63.

At Halifax, provision is made for the care of sick seamen, at the Victoria General Hospital under arrangement made with the managers by which the sum of \$1.20 per diem is allowed for the board and medical attendance.

In the province of Prince Edward Island the sum expended on account of sick seamen during the fiscal year was \$1,576.78, and the receipts from sick mariners' dues, \$137.08.

Sick seamen are cared for at the Charlottetown and Prince Edward Island Hospitals, under arrangements made with the managers of these institutions.

In the province of British Columbia the sum of \$5,792.99 was expended for sick and disabled seamen, while the receipts from the collection of sick mariners' dues amounted to \$12,372.40.

The Marine Hospital at Victoria has in attendance a medical superintendent, with a salary of \$300 per annum, and a keeper whose salary is \$500 per annum. He is also allowed a rate of \$5 per week for the board and attendance of each seaman.

At the ports where no hospitals are established, in the provinces of Quebec, Nova Scotia, New Brunswick, British Columbia and Prince Edward Island, sick seamen are cared for, under the chief officer of customs, when the vessel to which the seamen belong has paid dues according to law. A circular to collectors of customs was issued

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February 7, 1891, permitting sick seamen to be attended at the port of arrival of a vessel, provided that the regular dues are previously paid at some port.

During the fiscal year the sum of \$793.56 was expended for shipwrecked and distressed seamen, for which service there was a parliamentary appropriation of \$2,250.

The total expenditure on account of sick seamen and marine hospitals amounted to \$37,362.11, including expenditure for printing and stationery, and the appropriation of parliament for the service was \$37,500. The dues collected amounted to \$44,704.59.

		Receipts.	Expenditure.
		\$ cts.	\$ cts.
For the fiscal year ended June 30,	1869.	31,353 78	26,987 64
"	1870.	31,410 46	27,029 34
"	1871.	29,683 41	28,971 22
"	1872.	34,911 64	34,947 60
"	1873.	37,136 10	41,016 43
"	1874.	41,500 16	59,778 90
"	1875.	37,801 46	50,684 76
"	1876.	41,287 66	48,828 49
"	1877.	43,739 21	51,697 94
"	1878.	44,665 07	43,780 90
"	1879.	37,779 57	42,729 36
"	1880.	42,523 20	42,160 91
"	1881.	49,779 72	40,667 52
"	1882.	45,951 47	39,359 11
"	1883.	45,573 42	36,249 65
"	1884.	48,667 47	39,553 38
"	1885.	39,069 39	44,501 57
"	1886.	40,848 05	50,377 62
"	1887.	42,334 92	37,447 35
"	1888.	41,669 64	36,447 85
"	1889.	39,806 29	41,320 59
"	1890.	47,881 75	41,729 11
"	1891.	43,829 68	35,155 12
"	1892.	45,381 92	33,498 83
"	1893.	46,190 69	35,052 37
"	1894.	49,105 40	38,403 94
"	1895.	42,815 74	38,332 55
"	1896.	45,761 61	36,683 36
"	1897.	54,358 10	35,931 19
"	1898.	54,552 81	34,526 83
"	1899.	57,365 79	37,353 29
"	1900.	59,971 84	32,743 30
"	1901.	59,783 34	34,944 93
"	1902.	65,853 83	51,827 12
"	1903.	64,851 55	48,151 48
"	1904.	61,778 29	50,301 78
"	1905.	58,372 34	51,000 18
"	1906.	60,183 90	50,120 42
"	1907.	44,704 59	37,362 11
		1,809,723 86	1,595,612 04

WRECKING PLANT.

Yearly subsidies of \$10,000 are paid contractors who maintain wrecking plants always available to assist vessels which meet with marine accidents in certain divisions of Canadian waters.

The contracts at present existing are with Messrs. George T. Davie & Son of Levis, P.Q., who keep the tug *Strathcona* and other plant in readiness to assist vessels that meet with marine accidents in the lower St. Lawrence river. This company rendered valuable assistance to the SS. *Kensington* in November last.

The Dominion Coal Company maintain a wrecking plant at Sydney during the months of open navigation in that harbour, and at Louisburg during the winter months,

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always available for the waters of the Atlantic coast and Gulf of St. Lawrence. The following is a list of vessels assisted by this company during the past nine months:—

Angola, ashore at Louisburg.
Pors, ashore at Port Moulin.
Elina, Bacoro Point.
Collector, ashore at Bay of Islands.
Garibaldi, ashore at St. Pierre.
Sokoto, ashore at Louisburg.
Universe, ashore near Canso.
Fimreite, ashore at Whitehead.

The British Columbia Marine Railway Company are the contractors for maintaining the wrecking plant at Esquimalt, always available in the waters of British Columbia. The following vessels were assisted by the British Columbia wrecking plant during the past nine months:—

Twickenham, at San Juan island.
City of Seattle, at Trial island.
Princess Victoria, at Lewis rock.
Skagit, on the west coast of Vancouver island.
Fern, at Cadboro point.
Portland, at Discovery island.
Northwestern, at La Touche island.
Maple Leaf, off Oak bay.

COASTING TRADE OF CANADA.

By the provisions of chapter 83, Consolidated Statutes of Canada, being an Act respecting the Coasting Trade of Canada, no goods or passengers can be carried by water from one port in Canada to another except in British ships, but the Governor in Council may from time to time declare that the Act shall not apply to ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country and to carry goods and passengers from one port or place to another in such country, the parliament of Canada was empowered to pass the Act alluded to, under the provisions of the Imperial Act, 32 Vic., chapter 11, intituled: 'An Act to amend the law relating to the Coasting Trade and Merchant Shipping of British Possessions,' which came into operation in this country on its proclamation by the Governor General on October 23, 1869.

It was ascertained that the following countries, viz., Italy, Germany and Netherlands, Sweden and Norway, Austria-Hungary, Denmark, Belgium and the Argentine Republic allowed British ships or vessels to participate in their coasting trade on the same footing as their own national vessels:—the ships of Italy, by Order in Council of August 13, 1873; those of Germany, by Order in Council of May 14, 1874; those of the Netherlands, by Order in Council of September 9, 1874; those of Sweden and Norway, by Order in Council of November 5, 1874; those of Austro-Hungary, by Order in Council of June 1, 1876; those of Denmark, by Order in Council of January 25, 1877; those of Belgium, by Order in Council of September 30, 1879; and those of Argentine

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Republic, by Order in Council of May 18, 1881, were admitted to the coasting trade of Canada.

The following Act, entitled an Act respecting the Coasting Trade of Canada, was assented to May 15, 1902, and relates to the payment of duty on foreign-built British ships:—

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. In this Act, unless the context otherwise requires, the expression 'British Ships' means and includes all ships belonging wholly to persons qualified or entitled to be owners of British ships, under the provisions of 'The Merchant Shipping Act, 1894,' and any other Act of Parliament of the United Kingdom in that behalf, in force for the time being.

(2) For all purposes of this Act the expression 'the coasting trade of Canada' shall be deemed to include the carriage by water of goods or passengers from one port or place in Canada to another port or place in Canada.

2. No foreign-built British ship, whether registered in Canada or elsewhere, shall be entitled to engage or take part in the coasting trade of Canada, unless such foreign-built British ship has first obtained a license for that purpose, which may be granted by the Minister of Customs.

(2) The Minister of Customs shall issue such license to any foreign-built British ship, whether registered in Canada or elsewhere, upon application therefor and upon the payment of a duty of twenty-five per cent ad valorem on the fair market value of the hull, rigging, machinery, boilers, furniture and appurtenances of such ship.

(3) This section shall not apply to any foreign-built British ship registered as a British ship prior to the first day of September, 1902.

3. No goods or passengers shall be carried by water, from one port in Canada to another, except in British ships; and if any goods or passengers are so carried, as aforesaid, contrary to this Act, the master of the ship or vessel so carrying them shall incur a penalty of four hundred dollars; and any goods so carried shall be forfeited, as smuggled; and such ship or vessel may be detained by the Collector of Customs, at any port or place to which such goods or passengers are brought, until such penalty is paid, or security for the payment thereof given to his satisfaction, and until such goods are delivered up to him, to be dealt with as goods forfeited under the provisions of the Customs Act.

4. The master of any steam vessel, not being a British ship, engaged, or having been engaged, in towing any ship, vessel or raft, from one port or place in Canada to another, except in case of distress, shall incur a penalty of four hundred dollars; and such steam vessel may be detained by the Collector of Customs at any port or place to or in which such ship, vessel or raft is towed, until such penalty is paid.

5. Penalties and forfeitures under this Act may be recovered and enforced in the manner provided by the Customs Act, with respect to penalties and forfeitures incurred under it, and as if imposed by it; and this Act shall accordingly be construed with reference to said Act, and as forming one Act with it, and all words and expressions in this Act shall have the same meaning as the like words and expressions in said Act.

6. The Governor in Council may, from time to time, declare that the foregoing provisions of this Act shall not apply to the ships or vessels of any foreign country in which British ships are admitted to the coasting trade of such country, and to carry goods and passengers from one part or place to another, in such country.

7. Where, by treaty made before the passing of 'The Merchant Shipping (Colonial) Act, 1869,' (that is to say before the thirteenth day of May, eighteen hundred and sixty-nine), Her late Majesty, Queen Victoria, agreed to grant to any ships of any foreign state any rights or privileges in respect of the coasting trade of Canada, those

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rights and privileges shall be enjoyed by those ships for so long as Her late Majesty agreed, or His Majesty the King may hereafter agree, to grant them.

8. Chapter 83 of the Revised Statutes is repealed.

LEGISLATION.

During the last session of Parliament the following Acts relating to the Marine Department were passed and assented to:—

An Act to provide for further advances to the Harbour Commissioners of Montreal.

An Act to increase the borrowing powers of the Quebec Harbour Commissioners.

An Act respecting the Revised Statutes, 1906.

An Act to amend Schedule A to the Revised Statutes, 1906.

An Act to amend the Canada Shipping Act (Bill 108).

An Act to amend the Canada Shipping Act (Bill 175).

F. GOURDEAU, Lt. Col.,

Deputy Minister of Marine and Fisheries.

DEPARTMENT OF MARINE AND FISHERIES,

OTTAWA, October 28, 1907.

APPENDIX No. 1.

ANNUAL REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT
OF MARINE AND FISHERIES.

The Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit a report of the work done in the several services under the supervision of this office during the nine months ended March 31, 1907.

This embraces work done at departmental headquarters on the construction of lighthouses, lightships and fog-alarms, the supervision of construction and repairs of lifeboats; the administration of the vote for the removal of wrecks and obstructions in navigable waters; tidal and current surveys; and the publication, examination and correction of hydrographic charts; construction of and repairs to fish hatcheries and refrigerators; engineering points in connection with the construction and maintenance of fish-passes; supervision of surveys of oyster beds; examination of applications for foreshore, wharf and other lots as they affect the interests of navigation; preparation and publication of notices to mariners and hydrographic notes, &c.

As my last report carried an account of work fairly well to the end of the active working season of 1906, this report will be much briefer than usual, and record less work completed, but this apparent decrease is only consequent on the change in the fiscal year, and the necessity for making progress reports coincide with the end of the new term.

STAFF.

There is a special staff appointed for the tidal and current survey work; the remainder of the work of the branch is attended to by the general staff of the office.

Mr. J. F. Murphy of my staff, was, on October 21, 1906, given special charge as engineer of construction work in progress in Ontario, and has since that date been continuously employed in his new duties.

PERSONAL INSPECTION.

Personal inspections of construction work in progress have frequently been made during the year by Mr. Fraser and myself, and it is very desirable that such personal supervision of work should be extended as much as possible in the interests of efficiency. Examination of localities where work is proposed should always be made before the plans are prepared, and it is to be regretted, in the interests both of efficiency and economy, that the work, lately, has often been so much rushed as to prevent such preliminary inspections.

The appointment of district engineers, referred to last year, has been found to ensure greater promptness in making such inspections, and efficiency in carrying out resultant work.

The system for maintaining the efficiency of the fog alarm plants has been extended under the direction of Mr. C. Thompson-Schmidt, inspector of fog alarms. His report will be found appended (Appendix A) to this report.

OFFICE WORK

A large proportion of the work done by the general staff of the branch consists in the construction, repair or improvement of light buildings, fog-alarms, beacons and

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other aids to navigataion. Full details of the work done in this connection during the past nine months are contained in a separate report which is attached hereto. (Inclosure A.)

Plan and specifications for all important new buildings and repairs, new vessels, &c., are made or approved in this office.

The following table indicates the work done in the drafting office during the five months ended March 31, 1907:—

Description of Work.	Plans Designed.	Plans Received.	Copies Made.
Lighthouse towers and dwellings.....	15	9	55
Fog-alarm buildings.....			6
Details.....	18	5	66
Wharfs, piers, &c.....	1	1	9
Outbuildings.....		1	13
Buoys and apparatus.....		5	82
Machinery.....	1	13	9
Lanterns.....		2	2
Fish hatcheries.....	1		5
Steamers.....		1	
Land surveys.....	5	34	14
Charts under construction.....	1		
Plans relating to foreshore.....		51	8
Miscellaneous.....	8	56	91
	50	178	390

Total plans for five months from November 1, 1906, to March 31, 1907.....	618
Charts received and recorded.....	67
Charts received and entered in chart books.....	8
Photographs received and recorded.....	58
Specifications written.....	10
Notices to mariners issued (comprising 141 subjects).....	53

PUBLICATIONS.

The work of preparing and issuing notices to mariners continues to be heavy and urgent, during the past nine months, 107 notices, covering 284 subjects, having been published. Amongst important notices, involving considerable labour in compilation, and representing useful work done in the department, are:—

An index to last year's notices; hydrographic notes respecting uncharted dangers in Dodd and Cunningham passages, B.C.; changes of buoyage and description of new lights in St. Lawrence ship channel; and information respecting numbering of all Canadian lightships.

In the preparation of notices to mariners, I wish to testify to the faithful and accurate work done by Mr. J. M. O'Hanly, who assists in this branch of the routine work.

During the past nine months notices relating to waters outside of Canada were issued, covering 15 items relating to Newfoundland and Labrador, 2 items relating to the Atlantic, 12 to the inland, and 9 to the Pacific waters of the United States, as well as 31 notices referring to transatlantic subjects. No attempt is made to issue a complete synopsis of British or foreign notices, but merely to republish items likely to be of immediate interest to Canadian vessels, or to vessels leaving Canadian ports for the more important or frequented foreign ports.

REMOVAL OF OBSTRUCTIONS.

During the past nine months the following work has been done, under the annual appropriation for the removal of wrecks and obstructions:—

The tug *Castle*, which sank in the Detroit river, was moved, by contract, by the Midland Towing and Wrecking Co., of Midland, the contract price being \$1,750.

The schooner *Southampton*, which sank in Sarnia bay, Ont., is now being moved by the Reid Wrecking Co., of Sarnia, the contract price being \$950.

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The barge *Dobey*, which sank opposite Messrs. Rathbun & Co.'s wharf at Deseronto, Ont., is being moved by the Midland Towing and Wrecking Co., of Midland, the contract price being \$4,000.

The schooner *Mary*, which sank in Glace bay, N.S., was moved by contract, on December 10, 1906, by Mr. R. B. Spencer, of Glace bay, N.S., the contract price being \$40.

The schooner *S. E. Cove*, which sank in Amherst harbour, Magdalen islands, has not yet been moved, as the tenders called for, for doing this work, were considered too high.

HYDROGRAPHIC WORK.

The hydrographic surveys of this department are now in charge of Mr. W. J. Stewart, who will make a special report of the year's progress.

All hydrographic notes reaching the department are prepared for publication in this office, and embodied in notices to mariners.

In preparing notices to mariners, special attention has been paid to publishing all information obtainable respecting the hydrography of Canada, and the fullest possible sailing directions have been appended to all descriptions of aids to navigation, so as to increase the value of these notices. During the past nine months the following hydrographic notes were published:—

Affecting the Atlantic coast.—Sinking of steamer *Havana* in Halifax harbour; sinking of steamer *Baines Hawkins* in Main-a-dieu passage; wrecks of *Ripple* and *Ida M. Shaffner* removed from Port Bickerton; wreck of *Pearl* removed from Shepody river; wreck of *Columbia* removed from Sydney harbour; soundings reported inaccurately in Bay of Fundy; and Pioneer rock located and buoyed at entrance to Tusket river.

Gulf and River St. Lawrence.—Publication of new edition of St. Lawrence Pilot; and publication by the department of hydrographic charts, St. Lawrence river, No. 7 (Ile aux Foins to Ile de Grace), and No. 8 (Head of Lake St. Peter); wharf at Pointe aux Orignaux extended; and information respecting elevation of lights in St. Lawrence river below Quebec.

Inland waters.—Sinking of tug *W. B. Castle* in Detroit river; sinking of *C. B. Packard* off Kingsville; removal of wrecks of *Sandy* and *Laurier* from Ottawa river; and removal of wreck *Tasmania* from Pelee passage, Lake Erie; correction of sailing directions with reference to Knight point and Grosse point lights; and inclusion of Carillon, Chute à Blondeau, and Ste. Anne lock lights, Ottawa river, in Canadian list of lights and fog signals.

Pacific coast.—Various uncharted rocks reported in Clayoquot sound, Dodd and Cunningham passages, Tuck inlet, Pasley passage, Chatham sound, Quatsino sound, Hoskyn inlet, Dixon entrance, and Hecate strait; shallow depths reported in Edge passage; North island and northwest extreme of Graham island incorrectly shown on Admiralty chart; position of Birnie island light; erection of a wharf at Swanson bay; location of fish traps in Juan de Fuca strait; and notice of establishment of notice boards from Nootka island to Estevan point.

TIDAL AND CURRENT SURVEY.

The work in both branches of this survey has been actively prosecuted during the year, under the direction of Dr. W. B. Dawson.

Investigation of the Currents.—A full report on the currents in Belle Isle strait has been prepared. It is based chiefly upon the observations of 1906, when the whole season was devoted to the examination of the currents in this strait; and with these new results, the former information obtained in 1894 has been carefully compared and

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incorporated. The report is accompanied by a map and plates which illustrate in a graphic form the various characteristics that the current presents. As these are of a complex nature, the report is divided into two parts for greater clearness. The first part contains a general account of the characteristics of the current as a mariner would meet with them; and in the second part there is more explanation of the variation from its usual behaviour which may occur, and the amount of disturbance occasioned by wind and weather conditions. The relation of icebergs to the direction of the current and to the temperature of the water is also explained. The report is of a descriptive and practical character throughout, and is clearly indexed for ready reference.

Tidal Stations and Tide Tables.—The principal tidal stations on the St. Lawrence and Atlantic coasts have been maintained in continuous operation throughout the year; as well as five stations on the Pacific coast. Observations have also been obtained from Prince Rupert, the terminus selected for the Grand Trunk Pacific Railway, which will enable data for the tide there to be published in the Pacific tide tables for 1908. A new tidal station is in operation at Claxton at the mouth of the Skeena river, for the benefit of the important fishing establishments there; as the fishing on the Pacific coast is largely dependent on the time of the tide for a successful catch.

The tide tables for the eastern coasts of Canada have been rearranged and improved; and they now contain so much information that an index page has been added for ready reference. In the tide tables for the Pacific coast, tables have been added which show the time of slack water in the two principal passes, Active pass and Portier pass. These tables are calculated from the results of observations taken for over a year, and they will prove of substantial benefit to the heavy traffic passing through them. This traffic is largely handled by tugs which have to time their trips to accord with slack water in the passes used.

Besides the tide tables published by this survey, a number of supplementary ones are calculated, chiefly for local purposes. Amongst these may be mentioned tide tables for points on the St. Lawrence above Quebec, furnished to the Montreal Harbour Commissioners for the information of the pilot service; tide tables for Summerside, P.E.I., published in the local papers, and during the summer season, tide tables for seaside resorts on the lower St. Lawrence, which are much appreciated. These tables are prepared without involving any expense, even for the printing, but only with a little extra work in the office.

Proposed work for the season 1907.—During this season it is proposed to continue the investigation of the currents in the Bay of Fundy, to complete the region lying outward from St. John to the southern extremity of Nova Scotia. The tidal station at St. Paul island will also be rebuilt, as it has been in a precarious condition, and it is one of the most valuable reference stations, commanding as it does the main entrance by which the tides enter the Gulf of St. Lawrence from the Atlantic. A fully equipped tidal station will also be placed at Charlottetown, P.E.I. This will not only benefit the port of Charlottetown, but will also serve as a principal station for Northumberland strait, and will place that region on an independent basis. At present the tide tables throughout Northumberland strait are deduced from St. Paul island by a complicated system of variable differences, but this new tidal station will enable tide tables to be based directly upon observations in the strait itself.

ICE-BREAKING.

The work of ice-breaking in Thunder bay has been continued; tenders were invited, as usual, and a contract awarded to the Canadian Towing and Wrecking Company, of Port Arthur. The work was begun about the middle of November, 1906, and carried on continuously until December 17, of the same year; all boats being enabled not only to enter and leave the harbour without trouble but also to get to their berths at wharfs, docks or elevators. The contract price for breaking of ice, both autumn and spring,

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and for removal of all lightkeepers in the vicinity from their stations at the close of navigation, was \$25,000. An amount of \$18,000 was paid on account of work done during the fiscal year 1906-7, the balance being reserved for work to be done this spring.

Respectfully submitted,
WM. P. ANDERSON,

CHIEF ENGINEER'S OFFICE,
DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, ONT., April 1, 1907.

(INCLOSURE A.)

DETAILED REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT
OF MARINE AND FISHERIES ON CONSTRUCTION, ESTABLISHMENT
AND IMPROVEMENT OF LIGHTHOUSES AND OTHER AIDS TO NAVI-
GATION UP TO MARCH 31, 1907.

To the Deputy Minister,
Department of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit a detailed report on work done in the construction and establishment of aids to navigation for the nine months ending March 31, 1907.

NOVA SCOTIA.

NEW AIDS TO NAVIGATION.

Yarmouth Harbour.—A lighthouse erected on the northwest extremity of Bunker island was put in operation on January 15, 1907. The lighthouse stands on land 21 feet above high water mark and about 50 feet back from the water's edge. It is an inclosed square wooden building, with sloping sides, surmounted by a square wooden lantern, the whole painted white, and is 22 feet high from its base to the top of the ventilator on the lantern. The light is fixed red, dioptric of the sixth order, elevated 38 feet above high water mark, and visible 6 miles from all points of approach by water. The work was done by days' labour, under the direction of the Nova Scotia agency at a cost of \$599.12.

Jordan river.—A lighthouse tower was erected on the outer end of the breakwater on the east side of Jordan river. The tower is an inclosed square wooden building, with sloping sides, surmounted by a square wooden lantern, the whole painted white. It is 27 feet high from its base to the top of the ventilator on the lantern. The light is fixed red dioptric of the sixth order, elevated 24 feet above the high water mark, and visible 6 miles from all points of approach.

North Cape.—A new fog alarm building was erected. It is a framed wooden building, 53 feet 6 inches by 30 feet by 15 feet, and is painted white. The foundations are concrete; a concrete cistern under the boiler room built; also a concrete floor to boiler room, and a brick chimney, 40 feet in height.

A 3-inch diaphone plant will be installed.

The work is being done by days' labour, under the direction of the Nova Scotia agency and has cost to date \$3,898.77.

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Pictou island.—A lighthouse was established at the government wharf on the south side and near the west end of this island, and was put in operation on the opening of navigation in 1907. The lighthouse tower stands on the top of the bank near the wharf, on land 11 feet above high water mark and 35 feet back from the water's edge. It is an inclosed square wooden building, with sloping sides, surmounted by a square wooden lantern, the whole painted white. It is 26 feet high from its base to the top of the ventilator on the lantern. The light is fixed white dioptric of the sixth order, elevated 32 feet above high water mark, and visible 10 miles from all points of approach by water.

This work was carried out by days' labour under the direction of Nova Scotia agency at a cost of \$1,926.28.

Harbour island.—A wooden lighthouse tower and outbuildings is in course of construction on this island, the work being done by Mr. Stewart C. McMillan, of Isaacs harbour, N.S., the contract price being \$1,595.

Bear island.—A lighthouse was erected on Bear island. It stands on the middle of the island, on land 13 feet above high water mark and about 50 feet back from the water's edge. It consists of a square wooden building, with a square wooden lantern rising from the middle of its hip roof, is painted white with roofs red, and is 35 feet high from its base to the top of the ventilator on the lantern. The light shown is fixed red dioptric of the sixth order, elevated 42 feet above high water mark, and visible 8 miles from all points of approach by water.

The work was done by contract by Mr. E. C. Embree, of Port Hawkesbury, N.S., the contract price being \$1,870.

Considerable protection work to the lighthouse was also carried out by days' labour under the direction of Mr. J. F. Murphy at a cost of \$849.71.

Munro point.—A lighthouse was established on the southeast extremity of this point. The tower stands on land about 40 feet above high water mark. It is a square wooden building, with sloping sides, surmounted by a square wooden lantern, the whole painted white. The tower is 32 feet high from its base to the top of the ventilator on the lantern. The light is fixed red dioptric of the seventh order, elevated 67 feet above high water mark, and visible 9 miles from all points of approach by water.

This work was done by contract by Mr. P. L. Macfarlane, of Baddeck, the contract price being \$710.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Apple river.—Repairs to fog-alarm are being made; two new boilers will be supplied; the work is being done by days' labour.

Cape D'Or.—A new boiler will be supplied; also a new furnace door, and the piping renewed; the work being done by days' labour.

Brier island.—The new fog-alarm building, mentioned in last year's annual report as being in course of construction, was completed in February, of this year, the work being done by days' labour under the supervision of Mr. S. Montgomery, the total cost being \$9,575.63.

Lurcher lightship.—This lightship was overhauled, and had her bottom cleaned and painted, and repairs made to the machinery and hull.

Little Hope.—The breakwater at this station was in a very dilapidated condition, and considerable repairs were executed, and it is now in first-class order; the work being done by days' labour at a cost of \$3,146.

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A new reinforced steel concrete tower is now in course of construction at this station, the work being done by contract by the Steel Concrete Co., of Montreal, the contract price being \$4,950.

Sambro island.—The lighthouse tower was increased in height by building an octagonal concrete wall, 20 feet high, on top of the old octagonal stone wall, and was surmounted by a new circular iron lantern. The sides of the tower are covered with shingles painted white; the lantern is painted red, and the lighthouse is 52 feet high from its base to the vane on the lantern.

This work was done by days' labour under the supervision of Mr. J. A. Legere, was completed in November, 1906, and cost \$2,934.

Chebucto head.—The south boiler at this fog-alarm station was retubed, and several other repairs executed at the station; the work being done by days' labour at a cost of \$695.92.

Mauger beach.—Sherbrooke tower, on Mauger beach, utilized as a lighthouse, was increased ten feet in height, surmounted by a new and enlarged lantern, and fitted with a more powerful illuminating apparatus. The iron lantern, and the two sloping roofs of the circular tower are painted red, the vertical parts of the granite martello tower and of the superstructure are painted white, thus giving the building the effect of red and white horizontal bands. The height of the building, from its base to the ventilator on the lantern, is 60 feet. The light is a third order dioptric light, showing a bright flash at intervals of five seconds. It is elevated 64 feet above high water mark, and visible 13 miles from all points of approach. The illuminant is petroleum vapourized under an incandescent mantle.

The repairs which were being made to the breakwater at this station were also completed; the whole of the above work being done by days' labour at a cost of \$2,594.49.

Dartmouth.—Considerable repairs were done on the departmental wharf and depot at this place, the work being done by days' labour under the supervision of the Nova Scotia agency at a cost of \$622.

Popes harbour.—Considerable repairs are required at this station; the sills, planking, railing, steps and part of the platform to be renewed; the building resingled; the boathouse, oil store and cribwork protection work repaired and a new boat supplied. The work is being done by days' labour under the supervision of the Nova Scotia agency.

Wedge island.—About 300 feet of new cribwork protection work was built around the eastern side of the island, the work being done by days' labour under the Nova Scotia agency at a cost of \$1,166.

Louisburg.—A new boathouse was erected; the storehouse resingled; the west side of the lighthouse stripped and resingled and the chimney rebuilt; the work being done by days' labour at a cost of \$1,287.

Low point.—A new 40 horse-power Robb Mumford boiler and fittings will be installed at this fog alarm station, the boiler and fittings being provided by the Robb Engineering Co., of Amherst, N.S., and the price being \$1,156.

Cape Race.—A steel concrete tower is in course of construction at this station under contract by the Steel Concrete Co., of Montreal, the contract price being \$4,800; other works are being done by days' labour under the direction of the Nova Scotia agency, and the cost to date has been \$7,692.62.

Amet island.—Extensive repairs were made to the breakwater at this station to put it into serviceable condition, the work being done by days' labour at a cost of \$2,391.75.

Pictou island.—A new dwelling for the keeper of the west pier lighthouse is under construction by days' labour, and repairs are being made to the breakwater.

In addition to the above, minor repairs were executed at the following stations:—

Port Bickerton, addition to dwelling.....	\$138 33
Three Top island, repairs to station.....	276 60
Cape La Ronde, repairs to station.....	175 00
Bird island, repairs to dwelling.....	264 06
Caribou, repairs to tower, &c.....	274 99
Scattarie, repairs to fog alarm.....	265 45
The Budget, repairs to station.....	504 00
Cape Enrage, repairs to station.....	190 00
False passage, repairs to station.....	184 00
Ouetique, repairs to station.....	109 13

NEW BRUNSWICK.

NEW AIDS TO NAVIGATION.

St. John harbour.—A fixed red light, shown from a lantern on a pole, is maintained by the Intercolonial Railway authorities on the outermost (southwesternmost) corner of their wharf at the south extremity of the city, to indicate to vessels coming into the harbour at night the position of the outer end of the wharf.

Anderson hollow.—A light was established on the outer end of the government breakwater at Anderson hollow, on the opening of navigation in 1907. The light is fixed white, shown from an anchor lens lantern hoisted on a pole 22 feet high, elevated 26 feet above high water mark, and visible 8 miles from all points of approach by water.

AIDS DISCONTINUED.

Pokemouche.—In consequence of a change in the passage over the bar into Pokemouche gully it was impossible to make the range lights guide through the passage, and the light heretofore shown from a post standing 200 feet from the main lighthouse was therefore extinguished.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Machias Seal island.—The reservoir at this fog-alarm station was repaired and new iron beams and a concrete floor supplied. The dwelling house was also repaired and a new platform laid on south side of building. The work was done by days' labour at a cost of \$423.15.

Gannet rock.—A new fog-alarm building, to contain a duplicate 6 horse-power air compressing fog signal plant, with 5-inch low pressure diaphone, is under construction by days' labour under the direction of the New Brunswick agency. The machinery was supplied by the Canadian Fog Signal Company, of Toronto, the price of same being \$9,245.

St. Andrews.—Repairs were executed to the foundation of the lighthouse on the north end of the bar east of Navy island; a new ladder leading from the top of block to the beach made and new iron boat davits provided. A 10,000-blow fog bell was also erected on the east side of block. This work was carried out at a cost of \$3,193.85.

Big Duck island.—A new concrete reservoir, 24 feet by 30 feet by 9 feet deep, was constructed and a wooden cover made over it for the fog-alarm at this station. The reservoir inside the engine room was repaired and a new foundation of concrete placed

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under the cylinder of the engine. The dwelling house was sheathed and painted; the work being done by days' labour at a cost of \$1,118.25.

Head harbour.—A new cistern was made inside the lighthouse and the outside reservoir repaired, and a new concrete bulkhead erected on the upper end. Two sides of the dwelling-house and roof were reshingled and the boat tramway from boat-house to the beach renewed. The work was done by days' labour under supervision of the New Brunswick agency at a cost of \$1,023.41.

Letite.—The old reservoir at this station was repaired; a new bulkhead in cement placed on it, and new piping was also laid. Three additional rooms were also added to the keeper's dwelling; the work being done by days' labour at a cost of \$1,025.38.

Partridge island.—The high compressors, formerly in use at this station, were removed. The two large air tanks were transferred from the outside to inside the engine-house, and the reservoir was thoroughly repaired and recemented and piping extended to the several buildings on the island. The new dwelling for the assistant keeper was also completed and the city water extended to it. The work was done by days' labour under the supervision of the New Brunswick agency at a cost of \$5,019.72.

Negro point.—A submarine station is under construction at this place, the work being done by days' labour at a cost so far of \$877.11.

Cape Tormentine —The range lights at Cape Tormentine pier, which heretofore have only been maintained while the steamer *Stanley* was making winter passages between that point and Prince Edward Island, have been rearranged, and are now maintained throughout the year. The front light is a fixed white seventh order dioptric light, shown from a lantern hoisted on a mast on the west side of the freight shed on the southeast corner of the pier. The light is elevated 28 feet above high water mark, and visible 7 miles from all points of approach. The back light, shown from the cupola of the iceboat house, is a fixed white catoptric light. It is elevated 34 feet above high water mark, visible 7 miles, and is distant 2,425 feet from the front light.

Cocagne.—Range lights will be established at Cocagne. The front light is to be shown from an inclosed tower standing on the shore on the south side of the mouth of Cocagne river, 70 feet eastward of Cocagne bridge. The tower is a wooden building, square in plan, with sloping sides, surmounted by a square wooden lantern, the whole painted white. The height of the tower from its base to the vane on the lantern is 28 feet. The light is a fixed red light, elevated 26 feet above high water mark, and visible 6 miles from all points of approach by water. The illuminating apparatus is dioptric of the sixth order. The back light stands on the shore of the river, 865 feet from the front light, and is shown from an anchor lens lantern hoisted on a pole. A diamond-shaped beacon is attached to the pole to make it more conspicuous as a day mark. The light is a fixed red light, elevated 47 feet above high water mark, and visible 8 miles.

The work is being done by days' labour under the direction of the New Brunswick agency, and the cost so far is \$333.53.

Escuminac.—The old fog-alarm building at this station was converted into an engine-room for the new fog-alarm plant to be shortly installed, and an extension was built to contain two 50 horse-power boilers and a coal room and concrete cistern were also built. The machinery, which will consist of a 3-inch diaphone plant, will be installed during the course of the summer months. The cost of constructing the building which was done by days' labour under the New Brunswick agency, was \$2,470.71.

Campbellton.—The lighthouse tower from which the front light of the range is shown was moved 33 feet in the line of range to the east edge of the widened approach to the railway wharf.

MINOR REPAIRS.

Beacon light, repairs..	\$ 70 56
Buctouche, repairs to protection work..	384 33
Cape Enrage, repairs to station..	190 59
Goose lake, protection work..	225 53
Grand Manan, repairs..	113 16
Point Lepreaux, repairs to station..	107 00
Quaco, repairs to dwelling and fog-alarm..	130 00
Swallow Tail, repairs to station..	127 80
Sheldrake, repairs to tower..	65 82
Tiner point, repairs to fog-alarm, &c..	394 07

PRINCE EDWARD ISLAND.

NEW AIDS TO NAVIGATION.

Warren farm.—Range lights have been established on Warren farm, on the western side of Charlottetown harbour. The lights are shown from inclosed wooden towers, square in plan, with sloping sides, surmounted by square wooden lanterns, the whole painted white. Each tower is 30 feet high from its base to the top of ventilator on the lantern, and the lights are fixed red seventh order dioptric lights, visible 2 miles in the line of range. The front light is elevated 39 feet above high water mark, and the back tower stands 1,143 feet from the front one, the light being elevated 57 feet above high water mark.

The work was done by days' labour under the agency at Charlottetown at a cost to date of \$1,295.39.

IMPROVEMENTS IN EXISTING AIDS.

Souris.—The open steel skeleton tower, 25 feet high, fitted to take an octagonal lantern, 4 feet in diameter, mentioned in last year's annual report as being in course of construction, was completed. The tower was erected in the department shipyard at Sorel, the cost being \$650, and the cost of labour, &c., in erecting the same was \$599.98, making a total expenditure of \$1,249.98.

Panmure island.—Extensive repairs were made to the lighthouse at this station, the work being done by day's labour under the Charlottetown agency at a cost of \$445.38.

Brighton beach.—A new cribwork block foundation was built for the front light-house of this range; the new foundation consists of a block, 20 feet square, built of hemlock timber, seven tiers high. A ballast floor was placed between the third and fourth tiers and ballast stone filled in on top, the tower being then hauled back into position upon the hemlock flooring. The work was done by day's labour under the supervision of the Charlottetown agency, and cost \$139.86.

Indian point.—The foundation of the tower at this station was found to be defective, and a new foundation, of the best cement work, was therefore built; the repairs being carried out by day's labour under the supervision of the agency at Charlottetown at a total cost of \$2,541.74.

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In addition to the above work, minor repairs were also executed at the following places:—

Leards, repairs to front range tower..	\$204 67
Fish island, repairs to tower..	288 36
Cove head, repairs to mast ranges..	33 91
North Rustico, repairs, ballast, brush, &c..	239 45
Cape Tryon, repairs to building..	120 20
Georgetown, moving tower and repairs..	145 22
Georgetown, reconstructing wharf light..	86 31
Cape Bear, repairs to barn and fence..	263 54
St. Andrew's point, repairs..	75 00

QUEBEC.

NEW AIDS TO NAVIGATION.

Carleton.—A small lighthouse tower was built in Quebec for erection on the wharf at this place. It is a wooden building, square in plan, with sloping sides, surmounted by a square wooden lantern, and is 21 feet high. It is painted white, with the lantern roof red. The light will be a fixed red dioptric light of the sixth order, elevated 20 feet above high water mark, and visible 6 miles from all points of approach by water. The work was done by day's labour under the direction of Quebec agency, and cost \$333.32.

Port Daniel west.—A lighthouse was established on the eastern end of west point, and was put in operation on the opening of navigation in 1907. The light is fixed white, dioptric of the fourth order, elevated 100 feet above high water mark, and visible 15 miles from all points of approach by water. The illuminant, petroleum vapour burned under an incandescent mantle. The lighthouse tower stands 225 feet from the eastern extremity of West point, on land 70 feet above high water mark and 75 feet from the water's edge northward and southward. It is an inclosed octagonal wooden building, with sloping sides, painted white, surmounted by an octagonal iron lantern, painted white, and is 33 feet high from its base to the top of the ventilator on the lantern.

This work was done by contract by Messrs. Chapados & Robichaud, of Gascon, the contract price being \$900.

Belle isle.—The fog alarm building at this station has been completed. The building stands near the edge of the cliff at the northeast extremity of the island, and about two hundred feet northeasterly from the lighthouse tower. It is a rectangular wooden building painted red. The fog alarm consists of a diaphone, operated with air compressed by an oil engine, and gives during thick or foggy weather, one blast of $3\frac{1}{2}$ seconds' duration every minute. The horn, elevated about 90 feet above high water mark, projects from the northeast side of the fog alarm building.

The building was erected by day's labour under the direction of the Quebec agency at a cost of \$9,207.24; and the fog alarm machinery was supplied by the Canadian Fog Signal Co., of Toronto.

Cap Anguille.—A fog-alarm building to contain a 5-inch diaphone with two 50 horse-power boilers; and a reinforced steel concrete tower are in course of construc-

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tion. The fog-alarm building is nearly completed and the diaphone and machinery has been shipped ready to be installed.

The work of constructing the fog-alarm building is being done by days' labour under the supervision of the Quebec agency, and the diaphone was supplied by the Canadian Fog Signal Co., of Toronto.

The work on the steel concrete tower will shortly be started, and will be performed by day's work. The total cost to date at this station has been \$15,231.41.

Ellis bay.—Range lights were established at this bay, Anticosti, by M. Henri Menier, proprietor of the island, on the southwest coast, to lead into the bay. The front light is shown from a tower standing on the outer end of the breakwater built out from the east shore of the bay. It is a cylindrical cast-iron tower, surmounted by a circular metal lantern, and stands upon a concrete foundation in the form of a frustrum of a cone. The foundation and tower are painted white and the lantern roof red. The height of the building, from the foundation to the vane on the lantern, is 33 feet. The light is fixed white dioptric of the fourth order, visible over an arc of 90 degrees, and is elevated 35 feet above high water mark and visible 11 miles. The back tower stands on land near the shore at the bottom of the bay, 5,000 feet from the front one. It is similar to the front tower, but is 52 feet high, and stands on a foundation about 10 feet high of stone masonry, in the form of a frustrum of a cone. The light is similar to the front one, is elevated 79 feet above high water mark, and visible 14 miles over an arc of 90 degrees.

Fame point.—The fog alarm building mentioned in last year's annual report as being in course of construction at this station, was completed, by day's labour under the direction of the Quebec agency, the total cost of construction being \$6,356.26.

A new cylindrical iron tower, surmounted by a circular iron lantern, is also being constructed by day's labour and will be ready to receive the illuminating apparatus by the fall of the year.

Seven islands.—The new fog alarm building, mentioned in last year's annual report as being in course of construction, was completed, and a duplicate air compressing fog signal plant is being installed. The construction of the building and installation of a water supply was done by day's labour and cost \$6,110.27, and the machinery was supplied by the Canadian Fog Signal Company, of Toronto, the price of same being \$2,650.

Escoumains.—Range pole lights were established in the bottom of the harbour of Escoumains, and were put in operation on September 8, 1906. The front light mast stands on the edge of the public road, about 100 feet back from the shore, on ground 10 feet above high water mark. The back light mast is 402 feet from the front one, on ground 32 feet above high water mark. The lights are fixed red 50-candle power incandescent electric lights, in anchor lens lanterns affixed to the top of poles. The front pole is 20 feet high, and the light 30 feet above high water mark. The back pole is 25 feet high; the light 47 feet above the water, and both lights are visible 2 miles in the line of range.

The work was done by day's labour under direction of Quebec agency, and cost \$677.49.

Grosse Roche —A lighthouse was established on the east side of the Saguenay river, about one mile above Grosse Roche. It stands on land 6 feet above high water mark and 30 feet back from the water's edge. It consists of a square wooden dwelling, with a square wooden lantern rising from the middle of its hip roof. It is painted white with the roof red, and is 35 feet high from its base to the top of the ventilator on the lantern. The light is fixed white dioptric of the sixth order, elevated 36 feet above high water mark, and visible 6 miles upstream and downstream.

This work was done by contract by Mr. Albert Roy, of Chicoutimi, the contract price being \$1,550.

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St. Simeon.—A light was established on the outer end of the government wharf at St. Simeon. It is a fixed white light, elevated 40 feet above high water mark, and visible 11 miles over an arc of 163 degrees. The illuminating apparatus is dioptric of the fifth order. The light is shown from an octagonal wooden lantern, painted white with roof red, built on the apex of the roof of the rectangular wooden freight shed on the outer end of the wharf. The freight shed is painted drab with the roof red, and the height from the deck of the wharf to the ventilator on the lantern is 35 feet.

Hospital rock —Two range lights are in course of construction on Hospital rock, Goose island; the front tower is situated about 12 feet above high water mark, and the back tower stands on pasture land in the rear. The low front tower which is a square wooden building has already been completed, and the back tower, which consists of a three-section steel skeleton tower, ordered from Messrs. Goold, Shapley & Muir, of Brantford, Ont., has been put together and will soon be ready to receive the lantern and illuminating apparatus.

The work is being done by day's labour under the supervision of the Quebec agency. The cost of construction to date has been \$1,873.98, and the price of the steel tower is \$502.80.

Gentilly.—A pier was constructed for the front light of this range; 125 piles, 20 feet in length, were driven in to form the foundation and on this a concrete pier was built. The pier is 42 feet square at its base, 25 feet square at its top and is 30 feet in height. A tower and keeper's dwelling thereon are in course of construction. In addition to the above, the pier, on which the back light of this range will be erected, was also started. The work is being done by day's labour under the supervision of the Montreal agency, and the cost to date has been \$17,399.17.

Nicolet.—A pier for the front light of this range was built. It is 42 feet square at its base, 25 feet square at its top and is 30 feet in height. A tower and keeper's dwelling are now in course of construction thereon. The foundations for a tower, on which the back light of this range will be shown, were also constructed, and were built 7 feet above the level of the ground on account of danger from ice in the spring of the year.

The work on the above two piers, &c., is being done by day's labour under the direction of the Montreal agency, and the cost to date has been \$28,336.90.

Pointe du Lac.—Foundations for a tower on which to show the back light of this range are being constructed, the work being done by day's labour under the Montreal agency, and the cost to date being \$549.12.

Lake St. Peter.—The lightship at No. 2 curve in Lake St. Peter was removed from her station, and replaced by three permanent lights shown from towers standing on concrete piers, arranged as two ranges with the middle light common to both. This middle tower consists of a square fireproof dwelling painted white with a red roof, surmounted by an octagonal iron lantern painted red. It stands on a rectangular concrete white washed pier with battered sides and a pointed nose upstream. The pier rises 29 feet above the summer level of the river, and stands at the point where the axis of the widened channel from Yamachiche curve to No. 2 curve cuts the axis of the widened channel from No. 2 curve to No. 1 curve. The lighthouse is 28 feet high from the deck of the pier to the ventilator on the lantern, and the light is a fixed white dioptric acetylene light of the fifth order, elevated 49 feet above the water, visible 6 miles. The back lights are similar lights elevated 94 feet above the water and visible 6 miles. Each is shown from a skeleton steel tower, rising from the walls of a fireproof dwelling, standing on a square concrete pier with battered walls. The tower is surmounted by an octagonal iron lantern, the lantern and skeleton framework being painted red, and the dwelling and pier white. The pier rises 29 feet above the water, and the tower is 73 feet high from the pier to the ventilator on the lantern. The upper back pier

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having settled somewhat at the eastern corner, and the front pier at its lowest corner, the bottom around the piers, was consolidated by placing stone filling.

The whole of the above work was performed by day labour under the direction of the Montreal agency, and the cost during the year has been \$18,851.84.

Louiseville.—Range lights were established on the west shore of Rivière du Loup, near its mouth, to lead in from Lake St. Peter, and were put in operation on the opening of navigation in 1907. The lights are fixed white lights, shown from anchor lens lanterns hoisted on poles, and visible six miles in the line of range. The poles are made more conspicuous as day beacons by having a diamond-shaped slatwork painted white on the top of each, and are respectively 20 and 40 feet high, standing on ground elevated 6 feet above the summer level of the river. The front light is elevated 25 feet and the back light 45 feet above the water. The front light pole stands on the west side of Rivière du Loup, about one-quarter mile above its mouth, and the back light pole on the west side of Rivière du Loup, about one-tenth mile north from the front one. The work was done under contract by F. X. Therien, the contract price being \$375.89.

Gallia Bay.—Four range lighthouses were erected on the south side of Ile à la Pierre to guide through the channel north of Ile des Barques, and were put in operation on the opening of navigation in 1907. The lights are fixed white catoptric lights, visible two miles in the line of range, and stand on concrete piers, square in plan, with battered sides. The front lighthouse of the upper range stands on the south side of Ile à la Pierre, 5,375 feet from Ile à la Pierre lighthouse, and 140 feet back from the water's edge. It is a square wooden building, painted white, surmounted by a white square wooden lantern with red roof. The height of the building from the top of the pier to the top of the ventilator on the lantern is 19 feet, and the light is elevated 41 feet above the summer level of the river. The back lighthouse stands 660 feet from the front one. It consists of an inclosed cylindrical steel tower 5 feet in diameter, painted white, surmounted by a square wooden lantern painted red. The tower is 52 feet high from the top of the pier to the top of the ventilator on the lantern, and is elevated 73 feet above the summer level of the river. The front lighthouse of the lower range stands on the south side of Ile à la Pierre, 2,800 feet from Ile à la Pierre lighthouse, and 80 feet back from the water's edge. The lighthouse is a similar building to the front one of the upper range, and is elevated 38 feet above the summer level of the river. The back lighthouse stands 600 feet from the front one. It is a similar building to the back lighthouse of the upper range, and is elevated 71 feet above the summer level of the river.

This work was performed by day labour, under the Montreal agency; the steel towers were furnished from the government shipyard, at Sorel, at a cost of \$292.25 each, and the total cost of this work, inclusive of the steel towers, was \$34,301.71.

Ile du Pads.—Two range lighthouses were established to mark the channel from the upper end of Ile aux Foins to the intersection of the alignment of Ile du Pads range lights with the alignment of Lavaltrie range lights, and were put in operation on the opening of navigation in 1907. The front lighthouse stands on the south side of Ile aux Cochons, about 100 feet back from the water's edge, and about one-tenth mile from the southeast end of the island. It is a square wooden building, painted white, surmounted by a square wooden lantern, painted white. The building is 19 feet high from its base to the top of the ventilator on the lantern, and stands on a concrete pier 22 feet high, square in plan, with battered sides. The light is fixed white catoptric, elevated 39 feet above the summer level of the river, and visible six miles in the line of range. The back tower stands on the western end of Ile du Pads, 1,960 feet from the front lighthouse, and about 900 feet back from the water's edge in the line of range. It consists of an open steel square framework, with sloping sides, sur-

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mounted by an inclosed wooden watchroom and a square wooden lantern. The side of the framework facing the channel is rendered more conspicuous as a day beacon by being covered half way down with wooden slatwork. The lantern roof is painted red, the lantern sides, the watchroom and the slats are painted white. The height of the tower from its base to the top of the ventilator on the lantern is 69 feet. The light is fixed white catoptric, elevated 71 feet above the summer level of the river, and visible six miles in the line of range.

This work was performed by day labour under the Montreal agency; the steel tower was supplied by the government shipyard, at Sorel, at a cost of \$258; and the total expenditure on this work, inclusive of the steel tower, was \$10,031.67.

Ile du Moine.—Two range lighthouses were erected to mark the axis of the ship channel from the curve below Ste. Anne de Sorel, and were put in operation on August 23, 1906. The front lighthouse stands on the west end of Ile du Moine, about 400 feet back from the water's edge. It is a square wooden building, painted white, surmounted by a square wooden lantern painted white with a red roof. The building is 21 feet high from its base to the top of the ventilator on the lantern, and stands on a concrete pier 25 feet high, square in plan, with battered sides, whitewashed. The light shown is a fixed white catoptric light, elevated 43 feet above the summer level of the river, and visible five miles in the line of range. The back tower stands 1,590 feet from the front one. It consists of an open steel framework, square in plan, with sloping sides, painted brown, surmounted by an inclosed wooden watchroom and an actagonal iron lantern. The side of the framework facing the channel is rendered more conspicuous as a day beacon by being covered half way down with wooden slatwork. The lantern roof is painted red, the lantern sides, the watchroom and the slats are painted white. The height of the tower from its base to the top of the ventilator on the lantern is 86 feet. The tower stands on a whitewashed concrete pier 19 feet high, square in plan, with battered sides. The light shown is a fixed white catoptric light, elevated 108 feet above the summer level of the river, and visible five miles in the line of range.

The work was performed by day labour under the Montreal agency; the steel tower was supplied by the government shipyard at Sorel, and the total cost of this work, inclusive of the tower, was \$17,022.13.

Ile des Barques.—A lighthouse was established on Ile des Barques, which will form the front range of Ile du Moine lower range, and was put in operation on the opening of navigation in 1907. The lighthouse stands on Ile des Barques, about one-third of a mile from its eastern end, and 9,690 feet from the back range lighthouse on Ile du Moine. It consists of a square wooden building, painted white, surmounted by a square wooden lantern, painted white with red roof. It is 19 feet high from its base to the top of the ventilator on the lantern, and stands on a concrete pier, 24 feet high, square in plan, with battered sides. The light is fixed white catoptric, elevated 41 feet above the summer level of the river, and visible ten miles in the line of range.

The work was done by day labour under the Montreal agency, at a cost of \$12,680.49.

AIDS TO NAVIGATION DISCONTINUED

Baie St. Paul.—The exhibition of a light from the old lighthouse on the pier in the middle of Baie St. Paul has been permanently discontinued in consequence of the establishment of a light on the neighbouring government wharf at Pointe aux Corbeaux.

Lark islet.—The maintenance of a steam fog horn at Lark islet lightstation was discontinued when Prince shoal lightship was established, to prevent confusion.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Cape Bauld.—The fog horn maintained at Cape Bauld lighthouse was on November 1, 1906, replaced by a diaphone, operated by compressed air. The new fog-alarm is

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located in a rectangular wooden building, painted white with a red roof, located about 50 feet to the eastward of the lighthouse, and the diaphone gives blasts of seven seconds duration with intervals of thirty-eight seconds between them, or one blast every 45 seconds. The horn projects from the north side of the building. The diaphone plant was installed in November, 1906, being supplied by the Canadian Fog Signal Co., of Toronto. The cost during the year was \$9,818.88.

Cape Norman.—A new lighthouse tower, fog-alarm machinery and double dwelling are in course of construction at this station; most of the work having been completed with the exception of the double dwelling which has not yet been started. The tower is located near the old lighthouse, and is cylindrical iron, surmounted by a circular iron lantern, the whole painted red. The tower is 57 feet high from its base to the vane on the lantern. The light is a flashing white dioptric light of the third order, and the illuminant petroleum vapour burned under an incandescent mantle. It is elevated 116 feet above high water mark, and visible sixteen miles from all points of approach by water. A 3-inch diaphone was installed in place of the steam fog horn formerly in use, and gives one blast of 5 seconds' duration every 35 seconds. The machinery is contained in an engine house built on the east side of the old fog-alarm building, and is a rectangular wooden structure, painted white, with a red roof.

The work at this station is being done by day labour under supervision of the Quebec agency, and the cost to date has been \$12,839.25.

Greenly island.—A new fog-alarm building was erected on Greenly island, and was put in operation on August 15, 1906. It is a rectangular wooden building, painted white, with the roof red, and stands 695 feet from the lighthouse, and 60 feet back from the water's edge. The new fog-alarm consists of a diaphone, operated by compressed air, and gives during thick or foggy weather, one blast of five seconds' duration every minute. This fog-alarm replaces the steam fog horn heretofore used.

The work was done by day labour, under the direction of the Quebec agency, at a cost of \$4,596.97, and the fog-alarm machinery was supplied by the Canadian Fog Signal Company, of Toronto.

Cape Ray.—A new dwelling for the fog-alarm engineer at this station was built; the brick chimney of the fog-alarm building increased 10 feet in height, the cistern near the fog-alarm improved, and several other repairs to the station executed. The work was done by day labour, under the Quebec agency, and cost \$4,857.63.

Bird rocks.—A new fog-alarm building, to contain a 5-inch diaphone plant, is in course of construction at this station, and is nearing completion, the work being done by day's labour, under the Quebec agency, and the cost to date, \$5,030. The 3-inch diaphone has been supplied by the Canadian Fog Signal Company, of Toronto, the price of the same being \$7,100.

Anticosti lightship.—Repairs were made to this lightship, the boiler being overhauled and painted, the fresh water tanks recemented and repaired and the ship being in every way placed in good order.

Cap Madeleine.—A new fog-alarm building, to contain a 3-inch diaphone, will be erected at Cap Madeleine by day's work under the superintendence of the Quebec agency. A 3-inch diaphone plant and fittings have been ordered for this station from the Canadian Fog Signal Company, of Toronto.

Ste. Félicité.—Some changes and improvements were made to the fog signal plant at this station some extra parts including a suction air valve supplied and changes made in the air compressors, the cost of this work being \$1,623.89.

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Father point.—The fog-alarm at this station was changed so as to sound two blasts, each of 4 seconds' duration, with an interval of 3 seconds between the blasts, in every minute. Considerable repairs were also executed; the compressors of the fog-alarm were overhauled and the station put into good working order; the work being done by day's labour, at a cost of \$1,045.79.

Red islet lightship.—Repairs were made to this lightship, the boilers being overhauled, the fresh water tanks cemented and the electric plant repaired, the cost of the repairs being \$264.75.

Prince shoal lightship.—Repairs were made to this lightship; the dome and stays of boiler were sealed and painted, and the timing engine valve tuned up and spindle and new neck rings fitted; the fresh water tanks were also recemented and repaired, the cost of the repairs being \$600.

Lark islet.—The old keeper's dwelling house at this station, having been condemned, as unfit for habitation, a new dwelling was erected, the building being framed together in the workshops at Quebec and conveyed from thence to the site; the work was done by day's labour and cost \$1,946.32.

White island lightship.—Repairs were made to this lightship, the boiler being repaired and fresh water tanks overhauled, the cost of the repairs being \$554.69.

River Caribou.—The light shown from a pole since the back range lighthouse at River Caribou was blown down was replaced by a stronger light shown from a skeleton steel tower erected on a small knoll in the line of range 100 feet behind the temporary light. The new tower is a skeleton steel frame, square in plan, with sloping sides, surmounted by a square wooden lantern. It is 36 feet high from its base to the ventilator on the lantern, and the framework and lantern roof are red, the body of the lantern being white. The light is fixed white catoptric, elevated 40 feet above the level of the river, and visible six miles in the line of range.

The tower was constructed in the department's workshops at Quebec, by day's labour, and the cost of this work was \$671.69.

Quebec breakwater.—The substructure and the foundations for a steel skeleton tower, to be placed on the breakwater, to take the place of the old light now there, was prepared, and a steel tower, to be supplied by the Gould, Shapley and Muir Co., of Brantford, Ont., will shortly be erected; the cost of this work to date has been \$548.63.

No. 3 curve, Lake St. Peter.—A keeper's dwelling was erected on the front pier of No. 3 curve. It is constructed of expanded metal and cement, and is similar in details to the dwelling erected on the front pier of No. 2 curve.

Some 125 toise of stone were also placed around the pier to make it more secure.

This work was done by day's labour, under the direction of the Montreal agency at a cost of \$2,901.42.

Ile aux Raisins.—This range was shifted 75 feet to the westward of the old sites and two concrete piers are being built to receive these towers. The front pier is 19 feet square at its base, 12 feet square at its top and 21 feet in height and is completed. Foundations for the back light have been constructed and the work on this pier is now well under way. The work is being done by day's labour, under the supervision of the Montreal agency and the cost to date has been \$5,522.47.

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This work was done by contract by Messrs. Orange, Ribble & Co., the contract price being \$800.

Allumette lake.—A lighthouse was erected and put in operation at the lower end of Upper Allumette lake.

The light is fixed white dioptric of the sixth order, elevated 29 feet above the summer level of the lake, and visible from all points of approach by water. The tower is an inclosed square wooden building, with sloping sides, surmounted by a square wooden lantern, the whole painted white. Its height from the pier to the ventilator on the lantern is 27 feet, and stands on the uppermost boom pier of the Upper Ottawa Improvement Company, about 200 feet from the Allumette island shore. The pier is a square cribwork pier standing about 8 feet above the water.

The work was performed by day's labour under the foremanship of Mr. E. Corribeau, and cost \$852.76.

Port Colborne.—A reinforced steel pyramidal beacon was erected on the outer end of the eastern breakwater at Port Colborne and was completed on September 4, 1906. The beacon is square in plan, surmounted by a lens lantern, and is lighted with a white acetylene light occulted at short intervals. It is elevated 24 feet above the level of the lake, is visible ten miles from all points of approach, and is unwatched.

The work was performed by contract by Mr. M. J. Hogan, of Port Colborne, and the contract price was \$1,450.

AID TO NAVIGATION DISCONTINUED.

When Allumette island lighthouse was established, the light heretofore shown from Morrison or Hawley island, to show the old entrance to the Allumette rapids boom, became useless, and it has been discontinued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

False Ducks.—The dwelling at this station was destroyed by lightning, which also did some damage to the lighthouse. A new dwelling and oil shed were therefore erected, and repairs made to the tower. The fog alarm machinery at this station was also duplicated, the machinery being supplied by the Canadian Fog Signal Company, of Toronto, for \$2,650; and the work of construction being done by day's labour at a cost of \$2,585.94.

Presqu'île.—A new fog alarm building was erected at this station, the work being completed on November 24, 1906. It is a framed rectangular building, 56 feet 6 inches by 21 feet 3 inches, and is supported on concrete foundations. The work was done by day's labour, under the direction of Mr. M. J. Egan, and the cost of erecting the buildings was \$3,629.99. A fog-alarm plant will be installed during the summer.

Colchester reef.—Considerable repairs were made to the breakwater at this station; the work being done by day's labour, at a cost of \$705.50.

Saugeen river.—The back range lighthouse was moved back a distance of 1,650 feet in the line of range and placed on a stone foundation on the crest of the ridge on the north bank of the river. It is now distant 2,350 feet from the front tower, and the light is elevated 61 feet above the level of the lake.

The work was done by day labour, and cost \$110.35.

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Stokes bay.—A shelter shed was erected at this station and completed on November, 1906; the work being done by contract by Messrs. R. E. Moore & Sons, of Lion's Head, the contract price being \$165.

Penetanguishene.—Considerable repairs were executed to the lighthouse and pier at the reformatory dock at this place. The portion of the pier below the water line was removed and placed with 12-inch square hemlock timber, and the top pier was then finished off with 12-inch square white pine with a batter. The lighthouse also underwent a thorough repairing, and was provided with new sills, floors, joists, &c.

The work was performed by day labour, under the direction of Mr. H. J. Alward, the total cost being \$1,065.01.

Midland point.—Midland point front range lighthouse was removed from its foundation to a new foundation consisting of a concrete pier, square in plan, with battered sides, erected immediately to the northward of the old foundation, in the line of range. This change increases the distance between the range lights 20 feet and raises the front light one foot higher above the water, the light being now 32 feet above the level of the lake.

The work was done by day labour, at a cost of \$694.65.

Red rock.—Considerable repairs are being executed at this light station, the work being done by day labour, and the cost to date has been \$1,152.97.

Lonely island.—A new lighthouse tower and keeper's dwelling is in course of construction at this station, on the edge of the cliff, 300 yards back from the north short of the island. The tower is an octagonal wooden building, with sloping sides, painted white, surmounted by a circular iron lantern painted red, and is 57 feet high from its base to the vane on the lantern. The light will be flashing white, elevated 195 feet above the level of the lake, and visible twenty miles. The illuminating apparatus will be dioptric of the third order, and the illuminant petroleum vapour, burned under an incandescent mantle. The work is being done by day labour, under the foremanship of Mr. W. Fryer, and has cost to date, \$3,332.39.

Mississagi strait.—The fog alarm at this light station was changed on November 1, 1906, from the 'wildcat' whistle to a diaphone operated by air compressed by steam power. The new plant is contained in a rectangular wooden building, painted white, with a red roof, standing 125 feet south of the lighthouse at a point 14 feet above the water and 175 feet back from the shore line. The resonator is elevated 33 feet above the water, and the diaphone gives two blasts, each of 3 seconds' duration, with an interval of 3 seconds between them, every 45 seconds. The building was erected by day labour, at a cost of \$4,892.58, and the machinery was supplied by the Canadian Fog Signal Company, the price being \$5,746.90.

Sulphur island.—The lighthouse tower on sulphur island was rebuilt in October, 1906. It stands on the south end of the island, 125 feet back from the water's edge. It is an octagonal wooden building, with sloping sides, painted white, surmounted by an octagonal iron lantern painted red, and is 43 feet high from its base to the top of the ventilator on the lantern. The light is fixed white of the fifth order, elevated 49 feet above the level of the lake, and visible twelve miles from all points of approach by water.

The work was performed by day labour, under the direction of Mr. W. H. Brunel, and cost \$1,802.31.

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Minor repairs were executed at the following stations:—

Salmon point, new oilhouse and repairs.. . . .	\$176 93
Presqu'île, repairs to piers	248 55
Burlington, repairs to breakwater.. . . .	214 11
West Sister rock, shelter pier.. . . .	215 60
Boyd island, repairs to dwelling.. . . .	180 00
Black Bear island, lighthouse repairs.. . . .	248 76
Red river, lighthouse repairs.. . . .	289 14
Gull harbour, lighthouse repairs.. . . .	112 35
Long point, repairs.. . . .	269 71
Niagara, repairs.. . . .	197 82
North Sisters, repairs.. . . .	215 61
Nigger island, repairs.. . . .	130 52
Pleasant point, repairs.. . . .	225 45
Red river, repairs.. . . .	265 94
Point Traverse, repairs.. . . .	193 66

BRITISH COLUMBIA.

NEW AIDS TO NAVIGATION.

Entrance Island.—A 31-day Wigham light was established on the southeast end of Entrance island, as a guide to vessels entering Quatsino sound. The light is fixed white dioptric of the seventh order, elevated 90 feet above high water, and visible fifteen miles to the southward. The lantern stands on top of a small inclosed wooden tower, built on an open frame platform, the whole painted white, and the light is unwatched.

The cost of establishing this light, exclusive of illuminating apparatus, was \$669.26.

Lookout Island.—A 31-day Wigham list was established on the eastern end of Lookout island, as a guide to vessels entering Kyuquot harbour by Halibut channel. The light is fixed white dioptric of the seventh order, elevated 45 feet above high water mark, and visible twelve miles to the southward and eastward. The lantern stands on top of a small inclosed wooden tower, built on an open frame platform, the whole painted white, and the light is unwatched.

The cost of establishing this light was \$322.69.

Mosquito Harbour.—A 31-day Wigham light was established on the south extreme of Plover point. The light is fixed white dioptric of the seventh order, elevated 34 feet above high water mark, and visible two miles. The lantern stands on top of a small inclosed wooden tower, built on an open frame platform, the whole painted white, and the light is unwatched.

The cost of establishing the light was \$223.05.

Esteran Point.—A light, fog alarm and wireless telegraph station is in course of construction at this point, the work being done by day labour, under the superintendence of Mr. Thomas Tubman, and the cost to date \$301.30.

Pachena Point.—A first-class light and fog-alarm are under construction at this point, and are now nearing completion, full details of which will appear in next year's annual report; the work is being done by day labour, under the superintendence of Mr. George H. Frost, and the cost of construction to date has been \$28,388.13.

Tsusiatic and Seven Mile Creek.—Shelter sheds were established at Tsusiatic and Seven Mile creek on the west coast of Vancouver island. These sheds are connected by telephone with the government telegraph line to Victoria, and watchmen are maintained

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at them to promptly report vessels in danger within sight of the stations, and to render assistance in case of shipwreck. The shelter shed at Tsusiat is located on the headland immediately west of the 'remarkable waterfall' marked on the chart, and the Seven Mile creek shelter shed is on the prominent headland east of the creek.

This work was carried out by day labour at a cost of \$934.63.

Trial Island.—A lighthouse was erected on Trial island, and was put in operation on November 1, 1906. The lighthouse stands on a site 48 feet above high water mark immediately south of the 80-foot knoll, near the south point of Trial island. The lighthouse consists of a square wooden dwelling carrying a square wooden lantern on the middle of its cottage roof. It is 40 feet high from the sills to the vane on the lantern, and is painted white, with the roof and lantern red.

A fog-alarm was also established at this station, and was put in operation on September 1, 1906. It stands on a lower part of the rock, southeasterly from the lighthouse, and is a rectangular wooden building, painted white with a red roof. The horn projects from the south end of the building; and the fog-alarm consists of a diaphone, operated by means of compressed air, the power being supplied by an oil engine. It gives, during thick or foggy weather, one blast of 3 seconds' duration every minute. The work was done under contract by Geo. H. Frost and the total cost of the work to date has been \$11,939.

Pulteney Point and Scarlett Point.—Hand fog horns were supplied to the light-keeper at Pulteney point and Scarlett point light stations, which will be sounded, in thick weather, in answer to the fog whistles of steamers.

Pine island.—A lighthouse and fog-alarm were erected on this island; the light and the fog-alarm are now ready for service. The lighthouse stands 100 feet back from the extremity of the west point of the island and consists of a square wooden tower, rising from the western corner of a square wooden dwelling and surmounted by a polygonal iron lantern. The tower is 43 feet high from its base to the ventilator on the lantern, and the whole building is painted white, with the roof and lantern red. The light is fixed white dioptric of the fifth order, and is visible fourteen miles over an arch of 232 degrees. The fog-alarm will consist of a diaphone, operated with compressed air by an oil engine, and will give one blast of 7 seconds' duration every two minutes. The fog-alarm building stands 200 feet north-west of the lighthouse and is a rectangular wooden building, painted white with the roof red.

This work was done by day labour under the foremanship of Mr. Thomas Blair, and the total cost of erecting the building was \$21,071.29. The fog-alarm machinery will be supplied by the Canadian Fog Signal Co., of Toronto.

Lund.—A 31-day Wigham light was established on the east end of the south Ragged island. The light is fixed white dioptric of the seventh order, elevated 40 feet above high water mark, and visible eleven miles, over an arc of 249 degrees. The lantern stands on top of a small inclosed wooden tower, built on an open frame platform, the whole painted white, and the light is unwatched.

The light was installed by the C. G. S. *Quadra*, the Taylor Mill Company supplying the tower at a cost of \$169.24.

Lucy island.—A lighthouse was established on the northeast extremity of the easternmost Lucy island, and was put in operation on January 1, 1907. The lighthouse consists of a rectangular wooden dwelling, painted white with roof red, surmounted by a white square wooden lantern rising from the middle of its hip roof. The building is 36 feet high from its base to the top of the ventilator on the lantern. The light is fixed white dioptric of the fifth order, elevated 65 feet above high water mark, and visible thirteen miles, over an arc of 252 degrees.

This work was performed by day labour under the supervision of Mr. G. H. Frost, and cost \$7,059.04.

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CHANGES AND IMPROVEMENTS AT EXISTING STATIONS.

Cape Beale.—The rebuilding of Cape Beale lighthouse tower was completed on October 17, 1906, and a modern quick flashing light was re-exhibited from the new tower at the beginning of 1907. The tower is similar in size and colour to the old one and stands on the old foundation. The old illuminating apparatus is in use, showing a revolving white light every 30 seconds, with a red sector showing over the dangers in Barkley sound.

The work was done by day labour under the superintendence of Mr. George Forrest, at a cost of \$2,576.50. The tramway was also repaired by day labour at a cost of \$575.

Sechart.—This light, which was carried away by storm in 1906, was re-established. The light is, as heretofore, a fixed white light, elevated 25 feet above high water mark, and visible ten miles from all points of approach. The light is shown through a dioptric lens from a three-wick 31-day Wigham lamp placed upon the top of a small square inclosed wooden tower, standing on a wooden framework foundation. The tower and foundation are painted white.

Carmanah.—Repairs were executed to the tramway at this station; the boilers of the fog-alarm were also retubed and repairs executed to the hoisting engine; the work being done by day labour at a cost of \$779.74.

Race rocks.—The fog-alarm boilers at this station were thoroughly repaired, at a cost of \$586.84; and a new watershed built, at a cost of \$131.92, to connect with the reservoir; the work being done by day labour.

Laurel point.—The harbour light established on the extremity of Laurel point, Victoria harbour, was moved 80 feet to the northeastward, and is now shown suspended from an iron arm, 4 feet in length, projecting from the north corner of a square red brick chimney rising from the north corner of a small brick house. The chimney is 57 feet high from the base of the building, and the light is 40 feet above high water mark.

The work was done at a cost of \$38.61.

Porlier pass.—A new four-roomed cottage for the keeper was erected at this station, the work being done by contract by Mr. Isaac Somers, the contract price being \$725. A new water cistern was also built by day labour at a cost of \$185.50.

Ballenas isles.—A fog-alarm, to receive a 1½-inch diaphone, is being constructed at this station, under the superintendence of Mr. G. H. Frost, by day labour, the cost to date being \$1,200.

Sisters.—A fog-alarm building for a 1½-inch diaphone is under construction, by day labour, under the direction of Mr. George H. Frost. The machinery is on the spot and will be installed as soon as the building is ready for it.

Yellow island.—A fog-alarm building to contain a 1½-inch diaphone is under construction at this station, by day labour, under the direction of Mr. George H. Frost, the cost to date being \$1,200.

Ivory island.—A new fog-alarm is in course of construction at this station, and the material for the same has been purchased; the work is being done by day labour, under the direction of Mr. G. H. Frost, the cost to date being \$1,200.

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Minor repairs have been made at the stations enumerated hereunder at the cost mentioned:—

Cape Mudge, trail built..	\$175 00
Point Atkinson, boiler retubed and repairs..	213 00
Brockton point, repairs, &c...	100 00
Entrance island, repairs..	350 00
Discovery island, boiler retubed	105 00
Victoria harbour, repairs..	298 00
Egg island, repairs...	454 00

Respectfully submitted.

WM. P. ANDERSON.

Chief Engineer's Office,
Department of Marine and Fisheries,
Ottawa, Canada, April 1, 1907.

APPENDIX A.

REPORT BY THE INSPECTOR OF FOG-ALARMS.

(From July 1, 1906, to March 31, 1907.)

NOVA SCOTIA.

Apple River.—Inspected November 17, 1906. Repairs made to safety valve of trumpet, operating valve of trumpet, exhaust cock and pump. Old boiler condemned, two new boilers being built. Plant in fair condition.

Cape D'Or.—Inspected November 20, 1906. One duplicate boiler built and landed. New furnace door and some piping renewed. Plant in fairly good condition.

Cape Sharpe.—Inspected December 11, 1906. New driving pulley on No. 2 engine. Plant in good condition.

Point Prim.—Water supply pipe, from reservoir to whistle house, renewed. Plant in fair condition.

Brier island.—A diaphone plant, operated by steam installed, consisting of two 50 horse-power boilers, three air compressors, two air receivers, three pumps, two timing devices, one 3-inch diaphone. Plant in good condition.

Cape Fourchu.—Inspected August 29, 1906. No. 2 boiler repaired; patch on fire-box, head of whistle pipe renewed, one stay and one tube renewed. A number of rivets in dome renewed. No other repairs required. Plant in fair condition.

Seal island.—This station required no repairs. Plant in fair condition.

Cape Sable.—Inspected March 7, 1907. A diaphone plant operated by steam was installed, taking the place of the steam whistle. Plant in good condition.

Cape Roseway.—This station required no repairs. Plant in fair condition.

Cross Island.—Inspected August 4, 1906. Slight repairs made to boiler, fog-horn machine and pump. Plant in fair condition.

Chebucto Head.—Inspected August 25, 1906. South boiler retubed, portion of wasted tube plate cut out and renewed. Plant in good condition.

Maugers Beach.—Inspected January 11, 1907. Diaphone moved from lighthouse to fog-alarm building. Plant in good condition.

Cranberry Island.—This station required no repairs. Plant in good condition.

Louisburg.—Inspected January 30, 1907. Plant in good condition.

Scattarie.—Inspected February 13, 1907. Eccentric and valve rods on compressor straightened. Plant in fair condition.

Low Point.—Inspected February 22, 1907, whistle renewed. Crosby machine repaired steam gauge renewed. Plant in fair condition.

St. Paul's Island.—Inspected August 8, 1906, plant in fair condition. Boiler retubed, some piping renewed.

Cape Race.—Inspected March 27, 1907, plant in good condition. Two new boilers installed. New plant installed.

NEW BRUNSWICK.

Machias Seal Island.—Plant in good condition. A few leaky rivets in boiler were renewed.

Big Duck Island.—Inspected September 8, 1906. Plant in good condition. North

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boiler retubed. Slight repairs made to operating valve and reed box of fog-horn machine.

Long Eddy Pt.—Inspected September 11, 1906. Plant in good condition.

Head harbour.—Inspected September 10, 1906. Plant in fairly good condition.

Letite.—Inspected September 8, 1906. Plant in fair condition. A new boiler is being built to replace one of the boilers, which was condemned.

Lepreau.—Inspected September 18, 1906. Plant in fairly good condition. Diaphone was renewed, and plant changed to run with low pressure air.

Tiner Point.—Inspected July 11, 1906. Plant in first-class order. Slight repairs were made to air-compressors and spare parts supplied for engines.

Partridge Isd.—Inspected July 11, 1906. Plant in good condition. Slight changes were made to steam pipes and new blow-off cock, and a patch fitted to No. 2 boiler. Both boilers were covered with asbestos. Air-tanks were placed in building.

Quaco.—No repairs required. Plant in good condition.

Cape Enrage.—One condemned boiler was removed and replaced by a boiler that had been used at Halifax. Plant reported in good condition.

Grindstone Isd.—One new boiler was landed at station to replace one old boiler. Plant reported in fair condition.

Point Escuminac.—Plant reported in fair condition.

Miscou.—Plant reported in very good condition.

PRINCE EDWARD ISLAND.

East Point.—Inspected January 24, 1907. Plant in poor condition. Two new boilers are being built to replace those condemned.

Cape Ray.—Inspected in September, 1906. Plant in good working order. Smoke-stack lengthened 10 feet.

Cape Rosier.—Inspected August 9, 1906. Plant in good condition.

Fame Point.—Inspected August 9, 1906. Plant in good condition.

Cape Magdalen.—Inspected in September, 1906. Plant in good order.

Martin river.—Inspected in September, 1906. Plant in good working condition.

St. Felicite.—Inspected in September, 1906. Plant in perfect working condition.

Father Point.—Inspected June 25, 1906. Plant in very good running order. The plant was changed to run with a low pressure of air instead of high and low.

GENERAL REPORT ON C.G. LIGHTSHIPS.

(From July 1, 1906, to March 31, 1907.)

Lurcher.—Built in 1904 at the Polson Iron Works, Toronto, and placed on the Lurcher shoal. Inspected September 14, 1906. The ship came in Yarmouth, August 25, and received a general overhaul, and the ship put in first-class condition.

Anticosti.—Extensive alterations and improvements have been made to this vessel. The mooring hawse pipe has been changed from a horizontal to an inclined plane, and the powerful capstan moved from 'tween decks to forecastle head, thus giving the mooring chain a fairer lead and making the relieving springs much more effective. One boiler was retubed, and circulating pumps are being fitted to each boiler. All parts of machinery overhauled. When this work has been completed the vessel will be much more efficient than before.

White Island.—The new boiler fitted last year to this vessel has given every satisfaction and is a great improvement in every way. The machinery has all been

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overhauled. Water tanks, cemented and a new cylinder fitted to windlass. When the vessel leaves for her station, she will be in first-class condition in every part—boiler tested to 120 pounds, safety valves set at 70 pounds.

Prince Shoal.—The boiler and alarm machinery have been thoroughly overhauled; also the windlass. The hull and machinery throughout are in good condition. The boiler was tested to 105 pounds, and safety valves set at 60 pounds.

Red Island.—The new tubes fitted to boiler are all in good condition. The boiler has been cleaned out and all machinery put in first-class order. Boiler tested to 120 pounds, and safety valves set at 70 pounds.

Bell Boat, St. John's Harbour.—Very extensive repairs were necessary to the *Bell Boat* moored off St. John harbour, it having broken adrift and grounded on rocks. A complete new bottom was fitted; also several deck plates. The boat was fitted with an automatic acetylene gas system, and is now again ready for her station. When examined after being in water for some time everything was found tight.

C. THOMSON SCHMIDT.

APPENDIX No. 2.

ANNUAL REPORT OF THE COMMISSIONER OF LIGHTS, 1907.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit herewith the fourth annual report of this branch to October 15, 1907.

The principal work carried out has been the substitution of modern dioptric apparatus in a number of the important coast lights, and an extension of the gas buoy service.

Delay has been experienced in completing the electric submarine signal stations in the maritime provinces owing to inadequate transportation facilities.

The completion of the water front at the Dominion lighthouse depot at Prescott is proceeding, and should be nearly finished by the close of navigation this year.

The Parry Sound depot, Georgian bay, requires a berthing wharf for the new lighthouse and buoy boat, for which provision has been made in the estimates, and a contract has been let for this work. The wharf will be completed in time for use by the new boat.

Before proceeding to review the work of this branch in detail, attention should be directed to the lack of facilities for properly maintaining the aids to navigation now in service, and promptly installing new aids that have been provided.

In the Nova Scotia agency, the *Lady Laurier* and *Aberdeen* are available for lighthouse and buoy work, but they have been unable to carry out all the work which has been required, and in consequence of this, serious delay has been experienced in laying submarine cables for the stations at Louisburg, Yarmouth and Negro Head.

In the New Brunswick agency, the C.G.S. *Lansdowne* has not sufficient power, and is too small for the amount of work to be carried out, and it is necessary that some steps be taken by the department to provide a new steamer for this work. When this is done it will be possible to sell the *Lansdowne* out of the service.

The work in the Charlottetown agency has not increased in the same ratio as the work in other parts of the country, and for the present the existing facilities are adequate.

In the Quebec agency, it was impossible to put in operation the new occulting light at Belle Isle, high light, and the lantern, second order lens and occulting light at Belle Isle, low light, although these were available. The difficulty of transporting men and materials for construction work in this agency has affected the work of this branch owing to the necessary delay in completing structures for new apparatus.

In the Montreal agency, the administration of the lighthouses in the St. Lawrence river, from Platon to Montreal, on the Richelieu river and Lake Memphremagog are looked after by the Quebec agency, owing to the fact that the C.G.S. *Shamrock* and scow *Acetylene* are unable to do more than attend to the buoy service.

In this connection, the *Shamrock* is too small for the work which is required, and has not sufficient power to properly do the work in the fall of the year, when the ice begins to make, and should be replaced by a twin-screw steel steamer with an ice-breaking bow. When this steamer will be provided, the services of the *Shamrock* may be dispensed with, and it will be possible for the agent at Montreal to look after both the lighthouses and the buoys in his district.

The facilities which exist in the Montreal-Kingston division are adequate for taking care of the lighthouse and buoy service between Lachine and Trenton, but it is not possible at the present time to include the Ottawa river in this division.

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It is recommended that a new derrick-scow 100 feet x 30 feet be built at Prescott to replace the derrick-scow *Prescott*, owing to the fact that the latter is too small, and that the hull of the *Prescott* be used for the floating gas plant which is now temporarily installed on a small repair scow.

The service on the great lakes is attended to, at the present time, by contract. When the new Parry Sound buoy boat is completed, for which provision is made in the estimates, it will be possible to dispense with the contract steamer and the work will be much better performed.

In British Columbia, the steamer *Quadra* is the only government steamer available for lighthouse and buoy work; it has consequently been necessary during the past season to charter the steamers *Cascade* and *Maudé*, and latterly the tug *William Joliffe* and the tug *Fern*.

There is no agency which more urgently requires, at least one additional steamer for lighthouse and buoy work than British Columbia.

In May, 1907, Mr. C. E. Stewart, chief engineer of the C. G. S. *Lady Laurier*, was transferred to the staff of the undersigned, and during the summer was engaged in the preparation of plans for lighthouse and buoy tenders. These plans were prepared specially in view of the fact that the new lighted whistling buoys are larger and heavier than any floating aids to navigation which had to be attended to heretofore. A special feature has been made of the lifting derricks, and ample space has been provided.

Three sets of plans have been made, one for a large steamer which will be required eventually for the Nova Scotia agency, plans for a new steamer for the Parry Sound agency and plans for the new buoy boat which will be required as soon as the necessary provision can be made to replace the *Shamrock* on the ship channel buoy service.

The necessity of purchasing land at St. John, N.B., for the purpose of building wharfs and erecting storehouses for the lighthouse and buoy service of the Bay of Fundy, has been before the department for a number of years, but up to the present no action has been taken. This matter is assuming an acute phase at the present time, and some immediate action must be taken to enable the department to carry out, properly, its work in the New Brunswick agency.

At the present time, the department has an arrangement whereby a portion of the ballast wharf, St. John harbour, is used, but this is a very unsatisfactory arrangement. It will be necessary to make this provision in St. John, or to remove the headquarters of the lighthouse and buoy service in this agency to some other point.

COAST LIGHTS.

PROVINCE OF NOVA SCOTIA.

Sable Island, east end.—A second order double flashing light has been received and is in process of erection at this point.

Cape Fourchu.—A second order single flashing light has been received and will be put in operation before the close of the year.

Seal Island.—A second order double flashing light is being installed at this station.

Cape George.—A third order double flashing light has been received and is being erected.

Sydney Range, front light.—A fourth order lens with an occulting screen has been provided for this light.

PROVINCE OF NEW BRUNSWICK.

Shippigan.—A third order light, small model, single flashing, has been put in operation at this point.

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Little Belledune.—A fourth order fixed and flashing light, removed from Western islands, Georgian bay, has been overhauled at the lighthouse depot at Prescott, and installed at this station.

PROVINCE OF PRINCE EDWARD ISLAND.

Souris East.—A fourth double flashing light has been received at Charlottetown and will be erected immediately.

PROVINCE OF QUEBEC.

Heath Point.—It was expected that the 1st order single flashing light at this point would be in operation before the close of navigation this year, but owing to the lack of transportation facilities it was not possible to complete the raising of the tower at this place, and the light will be installed soon after the opening of navigation next year.

Fame Point.—A first order double flashing light has been put in operation here.

Cape Ray.—A first order triple flashing light has been provided for this station and is now in process of erection.

PROVINCE OF ONTARIO.

The light at *Lonely island* was burnt; a new tower has ben erected and a third order triple flashing light is in process of erection at this point.

Eastern gap, Toronto harbour.—A fourth order lens with an occulting screen and petroleum vapour light has been installed at this point.

Port Colborne.—A fourth order lens with an occulting screen and petroleum vapour light was installed here, but owing to the vibration caused by heavy seas it was necessary to change the illuminant from petroleum vapour to acetylene using a standard gas buoy occulting box to give the requisite period of light and darkness.

Port Dalhousie.—A fourth order lens has been provided for the main light at this point; the illuminant is electricity occulted automatically.

Minor Lights.

The following apparatus has been supplied by the Lighthouse Depot, Prescott, for various minor lights throughout Canada:—

PROVINCE OF NOVA SCOTIA.

Name of Station.	Order of Lens.	Arc of Visibility.	Remarks.
Bunker Island.....	6th.	360	
Glace Bay.....	6th.	360	
Grand Digue Light.....	6th.	360	
Jordan River.....	6th.	360	
West Point Harbour.....	6th.	360	
Sydney Ranges.....	4th.	180	French holophotes.

PROVINCE OF NEW BRUNSWICK.

Bear Island Light.....	6th.	360	
Cocagne Range.....	6th.	240	
Quaco Breakwater.....	6th.	270	

PROVINCE OF PRINCE EDWARD ISLAND.

Indian Point.....	4th.	270	
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PROVINCE OF QUEBEC.

Name of Station.	Order of Lens.	Arc of Visibility.	Remarks.
Point à Basil Range.....	4th.	270	
Ile du Moine.....	5th.	270	
Point au Basile Ranges.....	5th.	270	
Port Daniel Wharf.....	5th.	270	
River du Moulin.....	6th.	360	
Gallia Bay Ranges.....	7th.	240	2 lenses.
		120	
Gentilly Ranges.....	4th.	180	2 " French holophotes
Point du Lac.....	4th.	180	French holophotes.

PROVINCE OF ONTARIO.

Toronto, Eastern Gap.....	4th.	270	
Wolfe Island.....	5th.	270	
Bronte Light.....	6th.	360	
McKay Island.....	6th.	360	
Bronte Harbour.....	7th.	360	
Campbell Island.....	7th.	360	

Gas-buoy Services.

Reference has been made above to the transfer of Mr. C. E. Stewart to the staff of the undersigned. Mr. Stewart has been appointed inspector of gas buoy services with headquarters at Prescott, and his duties will be to inspect the gas buoys throughout Canada in order to see that the service is maintained in a uniform manner and in the best possible way.

Owing to the increase in the number of gas buoys and gas beacons in British Columbia waters it was necessary to appoint an officer to supervise this work, and Mr. Gordon Halkett, who was attached to the lighthouse depot at Prescott and who had considerable experience in this class of work, was detailed to proceed to British Columbia and assist the agent in that province.

Province.	No. of BUOYS.						No. in Service.
	Type.						
	5 & 6.	7 & 8½.	9 & 9½.	11.	14.	C*	
Nova Scotia.....		7	3	17	1		28
New Brunswick.....		11	1	5			17
Prince Edward Island.....		1	4				5
Quebec.....		18					18
Ship Channel.....		11				46	57
Montreal-Trenton.....	3	33				3	39
Above Trenton.....		11					11
Georgian Bay.....	1	10		3			14
British Columbia.....							

* Compressed gas.

In addition to the gas buoys the following gas beacons have been placed in service in British Columbia:—

- 1. Pointers, Chatham sound.
- 2. Ridley island, Prince Rupert.
- 3. Coast island, Prince Rupert, 2 beacons.
- 4. Green Top island, Chatham sound.

- 5. Watson rock, Gibson island.
- 6. Morning reef, Klewnugget.
- 7. Fog rock, Fitzhugh sound.
- 8. Zero rock, Rivers Inlet.
- 9. West rock, Gulf of Georgia.
- 10. Joan point, Dodds narrows.
- 11. Danger reef, Stuart channel.
- 12. Boat bluff, Sarah island.
- 13. Kelp reef, Haro channel.
- 14. Gabriola reef, Straits of Georgia.
- 15. Maud island, Seymore narrows.
- 16. Gillard island.
- 17. Lewis rock, Bayne's channel.

The gas beacons referred to above can only be used in British Columbia owing to the fact that the temperature conditions are such that the beacons do not freeze. It is not practicable to utilize gas beacons in Eastern Canada unless the beacon is housed in and artificial heat provided.

The automatic gas buoys which have been installed by this department in the past have given general satisfaction to the shipping interests and the department has been justified in increasing the number after practical experience in the operation of this type of buoy.

NUMBER OF LIGHT STATIONS, LIGHTS, FOG-ALARMS AND WARNING BUOYS IN THE DOMINION.

	Light Stations.	Lights.	Keepers.	Fog whistles, sirens and diaphones.	Fog horns.	Fog bells.	Fog guns or bombs	Gas buoys.	Whistling buoys.	Bell buoys.
Province of Ontario and above Mont- real.....	235	324	215	14	6	4	.....	58	.....	3
Lightships.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Province of Quebec.....	189	279	220	12	8	1	7	81	1	1
Lightships.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Province of Nova Scotia.....	233	237	234	12	10	3	1	17	18	29
Lightships.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Province of New Brunswick.....	113	146	118	8	7	2	1	25	5	15
Lightships.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Province of Prince Edward Island....	42	72	48	.....	1	.....	.....	5	3	1
Province of British Columbia.....	69	78	67	8	9	8	.....	8	3	3
Lightships.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Province of Manitoba.....	7	9	6	.....	.....	.....	.....	.....	.....	.....
	901	1,145	908	54	41	18	9	183	30	52

SUBMARINE SIGNALS.

During the past summer electric shore stations have been built at Louisburg, Yarmouth and Cape Fourchu and all machinery has been installed. At Negro Head it was necessary to build a land line between the cable landing at Negro Head and the fog-alarm station at Tiner point in order that the fog-alarm engineer could take charge of the submarine signal plant.

This station would be in operation had it been possible to obtain the use of the department's steamer for the purpose of laying the cable.

Owing to the pressure of other work this has been left but it is probable that two of the cables can be laid before the winter weather sets in.

The department has already in operation at Chebucto Head an electric submarine station, two bells are operating on independent cables on the shore station and a continuous service, practically without interruption, has been given.

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Five lightships are equipped with the new pneumatic Bell signal and have worked without the necessity of repairs or interruption since being installed.

The department has provided on a Willson automatic gas and whistling buoy, a receptacle so that a submarine bell attachment can be carried.

Up to the present time the Submarine Signal Company, of Boston, have not furnished to the department a suitable bell attachment for these buoys. This can be done and when it is provided it will be possible to put in service a larger number of submarine bells principally around the coast of Nova Scotia and the Bay of Fundy.

PARRY SOUND AGENCY.

Provision has been made in the estimates of the current year for the construction of a lighthouse and buoy tender for the Georgian bay, special plans have been prepared for this steamer and when completed and in service will be of the greatest possible assistance to the department in distributing lighthouse supplies on the great lakes and in placing and maintaining the heavy gas buoys which are in use in the Georgian bay.

As indicated previously a berth and dock is under construction at the Parry Sound depot, when this is finished the depot will be practically complete. The undersigned has personally inspected the work which has been done up to the present at Parry Sound and finds that it has been carried out in a satisfactory manner and that the depot is in every way creditable to the department.

DOMINION LIGHTHOUSE DEPOT, PRESCOTT.

No new structures have been erected at Prescott during the past year. The work of completing the water front has been carried on and it will be practically finished by the close of the present year.

Preparations are being made for the building of the new ways and are needed for hauling out the Department's boats.

In the opinion of the undersigned the time has arrived for the construction of a new machine shop at this depot for which full detailed plans have been prepared. At the present time machine work is carried out in two shops, which are too small for the amount of work to be done. Inspections have been made from time to time by different officers connected with this department, and as the reports indicate the work is carried out in an efficient and careful manner and is well done.

This depot is in charge of Mr. W. H. Noble, assistant commissioner of lights, and during his absence, Mr. A. Boyle, accountant, is in administrative charge.

Mr. Noble has been absent on special inspection work for a considerable portion of the past season, the work devolving on Mr. Boyle has been performed in a very satisfactory way.

The undersigned desires to record his entire appreciation of the services rendered to him by his staff, and it would not have been possible to carry out the large and increasing amount of work which is devolving on this branch without the hearty co-operation of all the officers connected with it.

Respectfully submitted,

J. F. FRASER,
Commissioner of Lights.

LIST of Buoys maintained by the Department of Marine and Fisheries in Canadian Waters in 1907.

ONTARIO.

	No. of Buoys.		No. of Buoys.
Amherstburg, including Bois Blanc.....	44	Parry Sound, gas-buoys (one with bell).....	3
Bay of Quinte (two contracts).....	19	Pembroke.....	23
Bears Rump.....	1	Pointe au Baril, beacons.....	15
Big Duck island, bell-buoy.....	1	" buoys.....	4
Blind river.....	4	Penetanguishene.....	10
Byng inlet.....	7	Port Arthur, gas-buoys.....	3
Collingwood.....	14	Port Rowan.....	10
Clapperton channel.....	9	Rainy river, beacons, pairs.....	11
Georgian bay.....	13	" buoys.....	14
" gas-buoys.....	4	River Thames.....	8
Goderich.....	3	Rondeau.....	6
Green shoal.....	1	St. Lawrence river, Montreal to Kingston, spars	84
Grecian shoal.....	1	St. Lawrence river, Montreal to Kingston, can-	
Gananoque.....	3	buoys.....	13
Hawkesbury.....	15	St. Lawrence river, Montreal to Kingston, gas-	
Kaministiquia.....	9	buoys.....	39
Lake Erie, gas-buoys.....	2	Ste. Placide, stakes and buoys.....	52
Sturgeon river.....	26	Sault Ste. Marie,	21
Lake of the Woods, including bell-buoy.....	115	" canal approaches.....	25
Lake Simcoe.....	5	Seine river and Grassy lake, piles.....	30
Lake Superior, including bell-buoy.....	8	" buoys.....	10
Little Current.....	8	South Baymouth.....	4
Lone rock, gas and bell-buoy.....	1	Stokes bay.....	6
Midland.....	7	Surprise shoal, bell-buoy.....	1
Murray canal and Presqu'ile bay.....	23	Temagami Lake, 4 beacons and.....	21
Napanee.....	14	Trenton.....	13
Niagara, bell-buoy.....	1	Victoria island, Lake Superior.....	3
North Sisters rock.....	4	Waubashene.....	37
Orillia.....	18	Winnipeg river.....	13
Pancake shoal, bell-buoy.....	1	Saugeen river.....	7
Parry Sound.....	27	Sturgeon river.....	26

QUEBEC.

	No. of Buoys.		No. of Buoys.
Agnes.....	1	North Temiskaming, bushes and.....	9
Amherst harbour.....	8	New Richmond.....	3
Anse à Gascons.....	1	North channel, Island of Orleans.....	12
Anse à Beaufls.....	1	Nouvelle.....	2
Barachois de Malbaie.....	1	Paspebiac.....	1
Bonaventure.....	3	Pentecost.....	1
Cap Chat.....	1	Percé.....	2
Cape Cove.....	1	Port Daniel.....	1
Cap Meule.....	1	Portneuf.....	9
Carleton point.....	1	Restigouche river.....	10
Chicoutimi.....	15	Richelieu river, balises.....	
Cock point.....	1	" to St. Johns.....	35
Chaudiere basin.....	7	" above St. Johns.....	21
Cape Despair.....	1	Rigaud river.....	3
Douthe's point.....	1	Riviere à la Pipe, Lake St. John.....	8
English bay.....	3	" des Prairies.....	10
Eschourie rock.....	1	Ste. Adelaide de Pabos.....	1
Fox river.....	1	Ste. Anne river.....	1
Gaspe.....	5	St. Thomas.....	8
Grand Entry.....	17	St. Godfroy.....	1
Griffin cove.....	1	St. Lawrence river, between Platon and Mont-	
Gros Cap-aux-Os.....	1	real, gas buoys.....	57
House harbour, Magdalen islands.....	6	St. Lawrence river, between Platon and Mont-	
Lake Temiskaming.....	13	real, unlighted buoys.....	200
Lake St. John—		Serpent reef.....	1
River Ashuapmuchuan.....		Temiscaming.....	13
" Mistassini.....		St. Placide, 40 bushes.....	
" Peribonka.....		Maintained by Quebec agency, gas-buoys.....	24
Roberval harbour.....		Maintained by Quebec agency, unlighted buoys	45
25 beacons and.....	110	Maintained by Quebec agency below Quebec,	
Little river west.....	1	bell-buoy.....	1
Lachine rapids.....	7	Maintained by Quebec agency below Quebec,	
Maria.....	1	whistling-buoy.....	1
Matane.....	3	Petite riviere, East.....	1
Mont Louis.....	1	Ville Marie.....	1

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List of Buoys maintained by the Department of Marine and Fisheries, &c.—*Con.*

NEW BRUNSWICK.

	No. of Buoys.		No. of Buoys.
Bathurst.....	26	Nappan river, 24 stakes and.....	3
Baie Verte and Port Elgin.....	36	Northwest arm, Miramichi.....	16
Bay du Vin.....	12	Northeast arm, 24 stakes and.....	8
Beaver and Blacks harbour.....	9	Oromocto.....	7
Black brook, Miramichi river.....	3	Ox island, St. John river.....	5
Black Lands gully.....	12	Petit Rocher.....	2
Buctouche.....	22	Pisarinco.....	2
" stakes.....	34	Pokemouche, number of bushes.....	7
" river, bushes.....	200	Quaco (maintained by C. G. S.),.....	3
Bartibogue.....	13	Richibucto and Albion.....	33
Campobello.....	10	" Rexton and Browns yard.....	30
Caraquet.....	21	Shediac.....	18
Cocagne, stakes, 30.....	11	" north of island, 26 bushes and.....	2
Dalhousie and Restigouche.....	12	Shippigan, 17 pickets.....	20
Didgequash.....	5	St. Andrews.....	14
Dipper harbour.....	3	St. Croix ledge.....	11
Dorchester.....	3	St. John river.....	77
Grande anse.....	4	St. Louis, 15 bushes.....	12
Grand Lake and Salmon river bushing.....	73	St. Simon, Bay Caraquet.....	4
Grand Manan, 1 spindle and.....	28	Tabusintac.....	18
Great Shemogue.....	7	Tracadie, South Gully, 30 bushes and.....	5
Hatfield point, bushes.....	7	Tracadie, 150 bushes, North Gully.....	11
Harvey.....	7	Tynemouth creek.....	3
Kouchibouguac and Black river, bushes.....	3	Washademoak, 147 bushes and.....	2
Lepreau.....	14	Waweig river.....	2
Letite and Back bay, 1 spindle and.....	5	West Isles, 4 spindles and.....	23
Little Shemogue, 1 beacon and.....	12	Maintained by agency—	
Little Shippigan.....	13	(gas buoys).....	12
Magaguadavic.....	4	(gas and bell, combined).....	2
Maquapit and French lakes, 20 stakes and.....	18	(gas and whistling, combined).....	11
Miramichi, 9 winter buoys, 1 lightship and.....	8	(can and conical buoys).....	110
Miscou.....	7	(whistling buoys).....	5
Musquash.....	21	(bell-buoys).....	15
Neguac.....	1	(bell boat).....	1
Neil harbour.....	1	(lightships).....	2

PRINCE EDWARD ISLAND.

	No. of Buoys.		No. of Buoys.
Bay Fortune.....	3	Little channel.....	3
Beach point.....	3	Montague.....	9
Bedeque.....	11	Murray harbour, 2 stakes.....	37
Brae harbour.....	5	New London.....	9
Brudenell river.....	4	Orwell and Vernon river, 36 bushes.....	6
Cardigan, Lower.....	6	Pinette, number of bushes.....	5
" Upper.....	12	Port Hill.....	12
Cascumpec, 12 stakes.....	14	Pownall.....	7
Charlottetown, 20 stakes.....	22	Rollo bay.....	3
Cove head.....	2	Rustico.....	5
Crapaud stakes and.....	5	Savage harbour.....	2
East river (Hillsboro').....	17	Souris.....	4
Egmont bay.....	12	St. Peters harbour.....	10
" south, 8 stakes and.....	2	Summerside.....	10
Georgetown.....	14	Tracadie.....	3
Goose harbour.....	2	West point.....	2
Grand river, 1 beacon and.....	12	Wood island.....	5
" lot 14.....	8	Maintained by agency (signal buoys).....	4
Indian rocks.....	1	" " (conical).....	4
Malpeque.....	16	" " (gas buoys).....	5
Miminegash.....	6	including Zephyr rock.....	

LIST of Buoys maintained by the Department of Marine and Fisheries, &c.—*Con.*

NOVA SCOTIA.

	No. of Buoys.		No. of Buoys.
Advocate harbour.....	6	McKinnon harbour.....	4
Apple river.....	8	Musquodoboit.....	7
Arichat.....	20	Martins Brook.....	6
Argyle river and sound.....	10	Metighan river.....	2
Avon river.....	6	Northport.....	12
Amherst Basin.....	4	North Sydney.....	5
Barrington.....	32	Neil's harbour.....	1
Bear river.....	12	Parrsboro'.....	6
Beaver harbour.....	8	Petit de gras.....	11
Blandford.....	5	Pictou.....	6
Bridgewater.....	10	Pope's harbour.....	3
Brule.....	5	Port Felix.....	11
Canning or Habitant river (6 dolphins).....		Port Hood.....	7
Canso and St. Andrews passage.....	30	Port Le Tour.....	15
Cape Negro or Northeast harbour.....	17	Port Medway.....	9
Cariboo.....	6	Port Morien.....	2
Chester.....	25	Port L'Hebert.....	12
Cheticamp.....	12	Pubnico.....	18
Chezzetcook and Petpiswick.....	6	Pugwash.....	9
Christmas island and Barra strait.....	11	Prospect, Lower.....	10
Clarks Cove, West bay.....	3	Port Mouton.....	5
Clarks harbour.....	17	Port Bickerton.....	3
Cockerwit pass and Woods harbour.....	20	Queensport.....	3
Cooks cove, Toby cove.....	4	River John (stakes).....	3
Calf island bay.....	5	Roseway.....	3
Canning river.....	6	St. Anns.....	5
Crow harbour.....	3	St. Mary river.....	8
D'Escousse and Lennox passage.....	27	“ up to Sherbrooke.....	18
Digby and Annapolis, 5 winter buoys.....	8	St. Peter's bay.....	16
Dover.....	4	St. Peters inlet.....	10
East Dover.....	3	Sambro.....	11
East bay, Bras d'Or.....	8	Shag harbour.....	13
Fourchu harbour.....	11	Sheet harbour.....	9
Great Bras d'Or.....	8	Shelburne.....	25
Gillis point, Boulaceet.....	1	Ship harbour.....	9
Guysborough.....	3	Ship rock.....	1
Glace bay.....	4	Shulee.....	8
Hay cove.....	14	Smith's island.....	1
Harbour au Bouche (6 stakes).....	4	Sydney.....	2
Ingonish, South bay.....	7	Shad bay.....	2
Isaacs harbour.....	12	Sober island to Ecum Secum.....	21
Indian harbour.....	4	Tangier.....	4
Jeddore.....	11	Tatamagouche, 46 stakes and....	18
Judique.....	1	Terrence bay.....	3
Ketch harbour.....	6	Tor bay.....	19
L'Ardoise.....	5	Three fathom harbour.....	5
Lahave.....	8	Tidnish.....	5
Little Narrows.....	10	Tusket (two contracts), (3 spindles).....	30
Little Dover.....	9	Upper Prospect.....	4
Little Bras d'Or.....	2	Wallace.....	15
Liverpool.....	3	West bay.....	3
Lockeport.....	6	West Dublin and Crooked channel.....	13
Lunenburg.....	7	Westport.....	3
“ back cove.....	9	Weymouth.....	13
“ middle south.....	16	Whitehead.....	9
Louisburg.....	7	Yarmouth.....	50
Liscombe.....	4	Maintained by agency—	
Mabou.....	19	(whistling buoys).....	18
Mahone bay and Chester.....	12	(bell-buoys).....	29
Main-à-Dieu.....	6	(conical and can-buoys).....	182
Margaree harbour.....	9	(gas-buoys).....	3
Merigomish.....	6	(combined gas and bell-buoys).....	2
Marie Joseph.....	13	(combined gas and whistling).....	12
Monseilier.....	10	(light vessels).....	2

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List of Buoys in the Waters of British Columbia.

Name of Buoy.	Position.	Description.
North bank.....	Hecate passage, Clayoquot sound.....	Black platform.
Vargas rock.....	Hecate passage, Clayoquot sound.....	Red platform.
Mears spit.....	Deception channel, Clayoquot sound.....	Black platform.
Stubbs spit.....	Off Stubbs spit, Clayoquot sound.....	Black platform.
Browning passage.....	West end of pass, Clayoquot sound.....	Red and black H. B. spar.
Browning passage.....	North shore bank, Clayoquot sound.....	Black spar.
Browning passage.....	Middle bank, Clayoquot sound.....	Red spar.
Hankin rock.....	Mosquito harbour, Clayoquot sound.....	Red and black H. B. platform.
Templar channel.....	Clayoquot sound.....	Black, steel can.
Amphitrite point.....	Barkley sound.....	Red steel whistle.
Sutton rock.....	Ucluelet harbour, Clayoquot sound.....	Red and black H. B. platform.
Swiftsure bank.....	Strait of Juan de Fuca.....	Light, whistle and bell.
Port San Juan.....	Off the harbour, Juan de Fuca.....	Red steel whistle.
Rosedale rock.....	Race rocks, Juan de Fuca.....	Red steel can.
Whale rock.....	Esquimalt harbour.....	Red and black H. B. spar.
Patterson rock.....	Esquimalt harbour.....	Black platform.
Canteen.....	Esquimalt harbour.....	Red platform.
Channel rock.....	Off Pelly islet, Victoria harbour.....	Black platform.
Songhies rock.....	Off Songhies point, Victoria harbour.....	Red spar.
Hospital rock.....	Off Marine hospital, Victoria harbour.....	Red platform.
Johnstone reef.....	Haro strait.....	Black steel can.
Darcy shoal.....	Off Darcy island, Victoria harbour.....	Black steel can.
Sidney spit (east).....	Off Sidney island, Victoria harbour.....	Black steel can.
Sidney spit (west).....	Off Sidney island, Victoria harbour.....	Red steel conical.
Sidney wharf (south).....	Shoal, Sidney wharf, Victoria island.....	Red spar.
Sidney wharf (north).....	Shoal, Sidney wharf, Victoria island.....	Red spar.
Sidney rock.....	Rock, Sidney wharf, Victoria island.....	Red platform.
Colbourne passage (south).....	Colbourne passage.....	Black platform.
Colbourne passage (north).....	Colbourne passage.....	Red platform.
Celia reef.....	Shute passage.....	Red steel conical.
Kelp rock.....	Satellite channel.....	Red steel conical.
Batt rock.....	Ganges harbour.....	Black steel can.
Horda rock.....	Ganges harbour.....	Black platform.
Banmohr rock.....	Trincomali channel.....	Red and black H. B. platform.
Governor rock.....	Trincomali channel.....	Black iron platform.
Victoria rock.....	Trincomali channel.....	Red and black H. B. steel can.
Virago rock.....	Porlier pass.....	Black spar.
Porlier pass fairway.....	Porlier pass.....	Black and white V. S., steel can cage on top.
Grappler reef.....	Houston channel.....	Black steel can.
Indian reef.....	Off Shoal islands, Stuart channel.....	Black steel can.
False reef.....	Off Preedy harbour, Stuart channel.....	Red and black H. B. steel can.
White rock.....	Trincomali channel.....	Red steel can.
Southeast.....	False narrows.....	Red spar.
Middle.....	False narrows.....	Red spar.
East.....	False narrows.....	Black spar.
West.....	False narrows.....	Black spar.
Rosenfeld reef.....	Strait of Georgia.....	Black steel can cage on top.
Gossip reef.....	Active pass.....	Black steel can.
Sandheads.....	Strait of Georgia.....	Red steel bell.
Sandheads.....	Channel across sandheads.....	Four black steel conical and eight red steel conical.
Point Grey fairway.....	Burrard inlet.....	Red steel can and bell.
Spanish bank.....	Burrard inlet.....	Red steel can and bell.
First Narrows.....	South side of Narrows.....	Red spar.
Burnaby shoal.....	Vancouver harbour.....	Red spar.
Reef point.....	Strait of Georgia.....	Red spar.
Welcome pass.....	Off Welcome point.....	Red spar.
Tattenham ledge.....	Welcome pass, north end.....	Black spar.
Snake island reef.....	Off Departure bay.....	Red steel conical.
Horsewall reef.....	Off Horsewell.....	Red steel conical.
Clarke rock.....	Close east of rock.....	Black platform.
Entrance.....	Nanaimo harbour.....	Black platform.
Gallows point.....	Nanaimo harbour.....	Red platform.
South channel.....	South end Nanaimo harbour.....	Black iron platform.
Middle bank.....	Nanaimo.....	Red platform.
South channel.....	Nanaimo.....	Black iron platform.
Satellite reef.....	Nanaimo.....	Red platform.
Middle bank.....	S.W. Shoulder Nanaimo.....	Red spar.
Middle bank.....	West Shoulder Nanaimo.....	Red spar.
Carpenter rock.....	Nanaimo harbour.....	Platform, black ball on pyramidal slat-work, white.
Mill stream.....	Nanaimo harbour.....	Black platform.
Passage rock.....	Protection island passage.....	Black platform.
Departure bay reef.....	Departure bay.....	Red platform.
Dorcas rock.....	Ballenas channel.....	Black spar.
Hornby wharf.....	West end of reef, Lambert channel.....	Black spar.
Reef, bluff No. 1.....	Baynes channel.....	Red steel conical triangle on top.
Reef, bluff No. 2.....	Baynes channel.....	Red steel conical.
Village point.....	Baynes channel.....	Red steel conical.
Kelp bar crossing.....	Kelp bar, Baynes sound.....	Red spar.
Kelp bar crossing.....	Kelp bar, Baynes sound.....	Red spar.
Fairway.....	Kelp bar, Strait of Georgia.....	Red steel structure on top supporting bell and gas light.

List of Buoys in the Waters of British Columbia—Continued.

Name of Buoy.	Position.	Description.
Atrevida reef.....	Malaspina strait.....	Red spar.
North reef.....	North end Texada island, Malaspina st..	Black spar.
Cortes island.....	Passage.....	Red steel conical.
Whaleton rock.....	Off Whaleton bay, Sutil channel.....	Red spar.
Haddington reef.....	South extreme of reef, Broughton strait.	Red steel structure on top supporting bell and gas light.
Dall Patch.....	Seaforth channel on easterly end of shoal.	Black and red H. B. platform.
Vancouver rock.....	Millbank sound.....	Red steel whistle.
Hazel point.....	Off Hazel point, Smith island.....	Red spar.
Ellinor rock.....	Prince Rupert harbour entrance.....	Red steel gas light.
Kestrel rock.....	Prince Rupert harbour entrance.....	Black steel gas light.
Barrett ledge.....	Prince Rupert harbour entrance.....	Red steel gas light.
Spire reef.....	Prince Rupert harbour entrance.....	Black steel gas light.
Alford reef.....	Metlakatla harbour.....	Red steel gas light.
Tugwell reef.....	Metlakatla harbour.....	Black spar.
Harbour channel, west....	Metlakatla harbour.....	Black platform.
Harbour channel, east....	Metlakatla harbour.....	Black platform.
Hodgson reef.....	Chatham sound.....	Black steel can.
Sparrowhawk rock.....	Cunningham passage, Port Simpson....	Black and red H. B. platform.
Hankin reefs.....	Cunningham passage, Port Simpson....	Red platform.
Dodd passage.....	South extreme harbour reefs, Pt. Sim'n.	Black spar.
Harbour reefs.....	North extreme Port Simpson.....	Red steel conical.

List of Spare Buoys in Stock, British Columbia Agency, 1907.

6 steel can buoys.	2 No. 8½ gas buoys.
3 conical buoys.	1 No. 8; gas and bell buoys.
3 wood 8ft. platforms.	1 No. 11. Lighted, whistling and bell.
1 wood 10ft. platform.	4 No. 9½; gas and whistling.

BEACONS, British Columbia.

Somas river, three wooden dolphins.	West rocks, steel framework, gas-light.
Sooke harbour, four single piles.	Middle bank, Naniamo, dolphin, light.
Dyke point, Esquimalt, pyramid, wood.	Beacon rock, Nanaimo, masonry, ball.
Shoal point, Victoria, wooden dolphin; electric light.	Maple spit, Baynes Sd., dolphin, ball.
Middle rock, Victoria, wooden dolphin; electric light.	Base flat, Baynes Sd., single pile, ball.
Brotchie ledge, steel and concrete cone, electric light and bell.	Union spit, Baynes Sd., single pile, ball. ¹
Lewis rock, masonry, drum.	Grassy point, Baynes Sd., single pile, ball.
Zero rock, masonry, triangle.	Goose spit, Baynes Sd., pyramid, wood, triangle.
Kelp reef, masonry, gas light.	Shark Spit, dolphin, drum.
Sidney spit, pyramid, wood.	Channel rock, iron spindle, drum.
Canoe rock, masonry, drum.	Wharf reef, Whaleton bay, iron spindle, drum.
Shute rock, masonry, ball.	Gillard island, Yuculta rapids, steel framework, gas-light.
Enterprise rock, masonry, ball.	Maud island, Seymour narrows, steel framework, gas-light.
Atkins reef, masonry, ball.	Chatham point, masonry, steel framework, gas-light and bell.
Walker rock, masonry, wigham light.	Camp point, pyramid, wood.
Romulus rock, four wooden masts, slats.	Zero rock, Rivers inlet, steel framework, gas-light.
North reef, pyramid, wood, ball.	Fog rocks, steel framework, gas-light.
Escape reef, pyramid, wood, drum.	White point, triangular, wood.
Holland bank, dolphin, wood, drum.	Regatta reef, pyramid, wood, ball.
Twin lslets, dolphin, wood, drum.	White stone, square, wood, drum.
Twin islets, dolphin, wood, cone.	Boat bluff, steel framework, gas-light.
Blackie spit, dolphin, wood, slats.	Klewnuggit, steel framework, gas-light.
Mud bay, thirty-nine single piles.	Watson rock, masonry, steel framework, gas-light.
Nicomeck'l river, six single piles.	Green Top island, steel framework, gas-light.
Gabriola reef, masonry, gas-light.	Prince Rupert, two range, steel framework, gas-lights.
Parthia shoal, two masts, drum.	Metlakatla, masonry, ball.
East, First narrows, dolphin, wood, inverted triangle.	Pointer rocks, steel framework, gas-light.
West, First narrows, dolphin, wood, drum.	
Gibsons landing, masonry, ball.	

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APPENDIX No. 3.

INVESTIGATIONS INTO WRECKS.

OTTAWA, CANADA, October 25, 1907.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit my report, upon the casualties and accidents, that have occurred upon the coasts of Canada, the River St. Lawrence, and the Great Lakes, during the past season of navigation. Investigations were held into the following casualties:—

Cassandra-John Lambert (averted collision).
Sovereign-Germaine (collision);
Havana-Prescott (collision);
Mary (sunk at wharf);
Montrose (stranding);
Prince George-Lowwood (collision);
Rosalind-Senlac (collision);
Wandrian (collision).

In addition to these, there have been various casualties, in the Lime Kiln crossing, Detroit river, which after careful inquiry, have, in most cases, been turned over to the United States authorities, to be dealt with; and, at the present time, three of these cases are before the court in Detroit.

The evidence, and decisions, in each of the above named cases, are on file in the department.

The St. Lawrence route has been wonderfully clear of accidents during the past season; only one of importance has occurred, that is to say, the steamship *Montrose*, which went ashore on Red island reef.

The Shipping Casualties Act has lately been amended, and the following changes have been made:—

1. A wreck commissioner has been appointed to hold investigations in all parts of the Dominion.

2. An investigation may be held, when ordered by the minister, into any casualty, or into the conduct, or incompetency of any master, mate, pilot or engineer, when he considers it necessary.

3. Two permanent assessors have been appointed for the ports of Montreal and Quebec. Captain Archibald Reid, port warden of Montreal, for the port of Montreal, and Captain James Bain, who takes the place of Captain John Temple, lately deceased, for the port of Quebec. The term of the appointment of these officers is for three years, which may be lengthened, or shortened, at the minister's discretion.

A full statement of wrecks and casualties that have occurred in Canadian waters, and to Canadian sea-going vessels in other waters, will be found in the supplement to this report.

LIME KILN CROSSING.

The Lime Kiln crossing is a short and narrow passage, nearly opposite Amherstburg, in the Detroit river; it is entirely in Canadian waters, although nearly all the dredging, improvements, &c., have been carried out by the United States government.

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The traffic through this crossing is enormous, the records showing some twenty-five thousand vessels passing through, in the course of a season, carrying nearly seventy million tons of freight. The whole breadth of the entire channel is only four hundred and fifty feet, that is to say, three hundred feet on the westerly side of the channel, with a depth of twenty-one feet; and one hundred and fifty feet on the easterly side of the channel, with a depth of nineteen and one-half feet. It will, therefore, be seen that it requires the greatest possible care and caution to avert collisions in this narrow channel, which, if they did occur, very possibly would tie up the greater part of the tonnage of the great lakes; it was, therefore, necessary to establish a patrol, and, as the crossing is entirely in Canadian waters, it was decided that a Canadian patrol boat should be commissioned, for this purpose; a set of rules and regulations were drawn up for the regulation of traffic in this crossing; and the patrol tug is on duty, day and night, with most satisfactory results, seeing the regulations carried out.

Attached is a copy of the regulations and instructions issued to the captain of the patrol boat.

The crossing at the Lime Kiln, being entirely in Canadian waters, it is the intention of the Canadian government to regulate the traffic in that locality, and the following regulations are to be carried out by the patrol boat, in addition to the regulations which have already been issued:—

1. All vessels bound down, to take the westerly channel of the Lime Kiln crossing.
2. All vessels bound up, to take the easterly channel of the Lime Kiln crossing.
3. In cases of confusion it is the duty of the patrol boat to instruct vessels in the order in which they will pass the crossing, bound either up or down.

A report is sent every day to the department from the officer in charge of the patrol boat, reporting what vessels have passed up or down; their names and nationality; and, in the event of any master disobeying the regulations, if it is a United States vessel, the matter is reported to the United States authorities in Detroit, to take action in the case; and, if a Canadian vessel, action is taken by this department. The patrol boat will remain on duty till the closing of navigation.

I am, sir,

Your obedient servant,

O. G. V. SPAIN,
Wreck Commissioner.

APPENDIX No. 4.

ANNUAL REPORT OF THE OFFICER COMMANDING MARINE
STEAMERS, &c., OF CANADA.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit a report on the several services under my superintendence. These services embrace the following branches at headquarters:—

Dominion Steamers,	Investigations into Wrecks,
Dominion Cruisers,	Fisheries Intelligence Bureau.
Pilotage,	

Separate report on investigations into wrecks will be found herein, and the reports on the work of Dominion cruisers, and Fisheries, on Intelligence Bureau, will be found in the Fisheries report.

I have much pleasure in testifying to the good work done by captains and officers of the various vessels under my command during the past year.

The following vessels comprise the Dominion steamer fleet. These vessels are employed, nearly exclusively, in lighthouse and buoy work:—

<i>Lansdowne,</i>	<i>Gulnare,</i>	<i>Shamrock,</i>
<i>Aberdeen,</i>	<i>Minto,</i>	<i>Scout,</i>
<i>Druid,</i>	<i>Stanley,</i>	<i>Reserve,</i>
<i>Brant,</i>	<i>Maisonneuve,</i>	<i>Champlain,</i>
<i>Quadra,</i>	<i>Frontenac</i>	<i>Montcalm.</i>
<i>Lady Laurier,</i>		

The steamers *Minto* and *Stanley* keep up communication between Prince Edward Island and the mainland during the winter.

The *Gulnare* is employed in the tidal survey work, and a synopsis by Doctor W. Bell Dawson, of the work done by her, will be found in the chief engineer's report.

The *La Canadienne* was employed at survey work in the River St. Lawrence, under the Hydrographer, during the season of 1906.

The *Maisonneuve* is principally employed in patrolling the channel between Kingston and Quebec for the purpose of ascertaining if the buoys, &c., are in position.

The *Bayfield* is employed, under Mr. J. W. Stewart, officer in charge of the hydrographic surveys, in Lake Superior. A full report of his work will be found elsewhere.

The *Frontenac* is a powerful tug, employed in the St. Lawrence ship channel, under the direction of Mr. Cowie.

The *Shamrock* is employed under Mr. U. P. Boucher, agent of the Department of Marine and Fisheries in Montreal, in the buoy service between Montreal and Quebec.

The *Scout* and *Reserve* are two vessels employed under the commissioner of lights, in the lighthouse and buoy service between Montreal and Kingston.

The cruiser fleet consists of the following ships, and a report of the work done by each will be found in the Fisheries report:—

<i>Petrel,</i>	<i>Osprey,</i>	<i>Falcon,</i>
<i>Canada,</i>	<i>Curlew,</i>	<i>Kestrel,</i>
<i>Princess,</i>	<i>Constance,</i>	<i>Vigilant.</i>

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The following are the dimensions, speed, armament, &c., of the different vessels controlled by this department:—

‘MINTO.’

The *Minto* is an iron steamer 225 feet long, 32 ft. 6 in. beam, and 20 ft. 6 in. depth, with a gross tonnage of 1,099 tons, indicated horse power 2,900. She is commanded by Captain A. Finlayson, and, as before stated, she is principally employed in keeping winter navigation open between Prince Edward Island and the mainland, but during the past season she has been actively employed in assisting in the erection of different Marconi stations in the Gulf and River St. Lawrence, and also in testing the capabilities of these stations in regard to the distance communication can be carried on. This vessel is fitted with Marconi apparatus.

‘LANSDOWNE.’

The *Lansdowne* is a wooden steamer, commanded by Captain Bissett, employed in lighthouse and buoy work in the Bay of Fundy. She recently had new boilers fitted and she is now ready for a considerable period of further service. She is 188 feet long, 32 feet wide, 15 feet deep, with a gross tonnage of 680 tons.

‘GULNARE.’

This vessel is commanded by Captain T. Taylor, and is employed entirely on survey work. Her dimensions are as follows:—

Steel vessel 137 ft. long, 20 ft. 5 in. broad, and 13 ft. 6 in. depth; gross tonnage, 262 tons.

‘MAISONNEUVE.’

The *Maisonneuve* is a screw steamer 75 ft. 7 in. long, 9 ft. 7 in. broad, and depth of hold 7 ft. 3 in., with a gross tonnage of 26 tons.

‘ABERDEEN.’

This vessel is employed in lighthouse and buoy work in the Halifax agency. She is an iron screw steamer 180 ft. long, 31 ft. broad and 16 ft. deep, with a tonnage of 674 gross. She has been fitted with Thornycroft-Marshall water-tube boilers, which have given every satisfaction.

‘PETREL.’

This vessel is a steel screw cruiser 116 ft. long, 22 ft. beam and 10 ft. 3 in. depth, with a gross tonnage of 192 tons. She has done most excellent work in Lake Erie, looking after United States fishermen, but for the last few seasons she has been found too slow to cope with the American steam tugs which are used for fishing purposes on the upper lakes. It was therefore decided to replace her with a very much larger and faster ship, and send the *Petrel* to the Atlantic coast where steam fishing vessels are not in use, and she will only have to cope with sailing schooners. She is commanded by Captain Kent.

‘STANLEY.’

The *Stanley* is an iron screw steamer 207 ft. long, 21 ft. beam, and depth of hold 19 ft., with a gross tonnage of 914 tons. This vessel, when her winter service was finished, early this spring, was sent to Scotland, to be generally overhauled; she has been fitted with new boilers, and thoroughly strengthened and put in order, in every way, to withstand the work she has to perform, in endeavouring to keep open communication between Prince Edward Island and the mainland. She will leave Scotland on November 16, and ought to arrive in this country about the end of that month. There is no

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doubt that this vessel will now be in a position to carry out the winter service in a satisfactory manner.

‘LADY GREY.’

The *Lady Grey* is a twin screw steamer, which was built for the department, last year, by Vickers, Sons and Maxim, of England; she has performed excellent work, in regard to the St. Lawrence ship channel, and is under the control of Mr. Cowie, the superintending engineer.

‘OSPREY.’

This is a sailing schooner, employed in the Fisheries Protection Service on the Atlantic coast. She is 127 ft. long, and was built in Shelburne, Nova Scotia, and for some years was the fastest sailing schooner on the Atlantic coast. She is still very fast but there is no doubt that some of the United States fishing schooners are as good as she is now. She was commanded during the season by Acting Captain Graham.

‘DRUID.’

The *Druid* is a lighthouse and buoy ship employed in the Quebec agency. She is a twin screw steamer 160 ft. long, breadth 30 ft., depth of hold 12 ft. 5 in. with a tonnage of 503 tons, and is fitted with triple expansion engines. She was built by Messrs. Fleming & Ferguson, Paisley, Scotland, in 1903, and is commanded by Captain Koenig.

‘BRANT.’

The *Brant* is employed in the lighthouse and buoy service in Prince Edward Island. This is a wooden steamer 100 ft. long over all, 19 ft. broad and 8 ft. deep. This vessel is also employed in the fisheries protection service when necessity arises. She is commanded by Captain McKinnon.

‘QUADRA.’

This vessel is employed in lighthouse and buoy service in British Columbia. She is an iron steamer 174 ft. long, 31 ft. beam, and a depth of 13 ft. 6 in., with a gross tonnage of 573 tons. She is commanded by Captain Hackett. This vessel, though doing good work on the Pacific, is not large enough or fast enough for the large number of extra aids to navigation which it is considered necessary to place on this coast, and I would recommend that a vessel more suitable for the work which has to be performed, should be built as soon as possible.

‘PRINCESS.’

The steamer *Princess* was purchased during last season, has taken the place of *La Canadienne*, and does exactly the same patrol work, under the command of Commander Wakeham. The *Princess* is a steel screw steamer, built in 1896 at Grangemouth, in England; she is 165 ft. long, 26 ft. beam, and her depth of hold is 17.7 ft.; her gross tonnage is 542, and she was purchased from the Charlottetown Steam Navigation Company. *La Canadienne* was handed over to the hydrographic survey for survey work in the lower St. Lawrence.

‘SHAMROCK.’

This vessel is employed in the buoy service between Montreal and Quebec. She is a steam barge 117 ft. long, 25 ft. beam, and 9 ft. 7 in. deep, with a gross tonnage of 237 tons. She is under the control of Mr. U. P. Boucher, agent of the Department of Marine and Fisheries in Montreal.

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'CURLEW.'

This is a twin screw iron steamer 116 ft. long, 19 ft. 8 in. wide, and 11 ft. 3 in. deep; gross tonnage, 158 tons. She is employed in fisheries work in the Bay of Fundy and western coasts of Nova Scotia, and is under the command of Acting Captain P. Robinson. She also assists in marine work when necessary.

'CONSTANCE.'

The *Constance* is a sister ship of the *Curlew* and is employed in revenue work in the River St. Lawrence and Atlantic coast. She is controlled entirely in regard to her movements by the Customs Department, but is managed, in reference to expenditure, crew, &c., by this department. She is commanded by Captain May.

'LADY LAURIER.'

The *Lady Laurier* is a twin screw steel steamer, commanded by Captain Johnston. She is 214 ft. 9 in. long, 34 ft. 2 in. broad with a depth of 17 ft. 2 in., tonnage gross 1,051. She is employed in the lighthouse and buoy service on the Atlantic coast and is attached to the Nova Scotia Agency. She was built in 1902 to take the place of the late steamer *Newfield*. She is a very powerful and staunch steamer eminently fitted for the work she has to perform.—*Fitted with Marconi apparatus.*

'SCOUT' AND 'RESERVE.'

Are two steamers used in connection with the buoy service between Montreal and Kingston. The *Reserve* is used for sweeping the river and is also used for towing scows employed for the purposes of placing buoys in position. The *Scout* is furnished with electric light and a powerful searchlight. Her dimensions are 103 ft. 6 in. long, 25 ft. 6 in. beam, depth 9 ft. 2 in., gross tonnage 175.

'FALCON.'

The *Falcon* is a small steamer employed in the protection of the fisheries in British Columbia waters. She is 70 ft. 7 in. long, breadth, 17 ft. 8 in., depth, 7 ft. 4 in., with a gross tonnage of 71 tons. An account of her work will be found in Inspector Williams' report, in the fisheries part of the departmental report.

'KESTREL.'

The *Kestrel* is also employed in the protection of the fisheries in British Columbia waters. This vessel is 126 ft. long, beam, 12 ft. 2 in. depth, with a gross tonnage of 311 tons. She is a wooden vessel and commanded by Captain Newcomb. The conditions are so changed since this vessel was built, that she is now too slow, and it is recommended that a much faster and larger vessel be built.

'CANADA.'

In reference to the five new steamers, the *Canada* is a twin screw small third-class cruiser with a speed of $21\frac{1}{4}$ miles an hour. She was built by Vickers, Sons & Maxim, at Barrow in Furness, England, is armed with four $1\frac{1}{2}$ pounder quick firing automatic mark 3, 1904 guns; two forward and two aft. Electrically lighted throughout and fitted with a very powerful searchlight. She arrived from England September, 1905, and has proved a very great success in the work for which she was designed to perform. It is the intention, that this vessel should make a cruise of the West Indies during the winter. She carries a crew of 75 officers and men all told, and is fitted with the Marconi apparatus. Her dimensions are as follows:—200 ft. long, 25 ft. beam and 10 ft. 6 in. draft of water, with a gross tonnage of 850 tons. She is com-

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manded by Captain Knowlton, and a number of the officers and crew have been through a course of instruction and received first-class certificates in gunnery. This vessel is also armed in the way of small arms, with the new pattern Ross rifle, and the New Service D.A. Colt's revolvers. It was intended that this vessel should form the nucleus of the proposed Canadian Naval Militia.

‘VIGILANT.’

The *Vigilant* is a steel twin screw, small third-class cruiser, built by the Polson Iron Works, Toronto. This vessel on her steam trial made a speed of 21½ miles an hour. She is 175 ft. long, 22 ft. beam, and draws 10 ft. of water. She is electrically lighted throughout and fitted with a powerful searchlight. She carries the same guns and the same small arms as the *Canada*, and is used for the protection of the fisheries on the great lakes in place of the *Petrel*. She is commanded by Captain Dunn. This vessel is the first of her class ever built in Canada, and is a credit in every way to the Polson firm of Toronto. She carries a crew of officers and men all told, of 53.

‘MONTCALM.’

Is a screw steel ice-breaker, length over 252 ft., breadth outside 40.65 ft., depth bottom of keel to top of deck 19.05 ft., displacement 2,130 tons, two sets of triple expansion engines, speed 13½ knots, with 4 Babcock & Wilson water tube boilers, gross tonnage, 1,432 tons, indicated horse-power 3,600, built by Messrs. Fleming & Ferguson, Paisley, Scotland. She is commanded by Captain Belanger and fitted with *Marconi Apparatus*.

‘CHAMPLAIN.’

Is a single screw steel steamer. Length over all 132 ft., breadth outside 30 ft. 3 in., depth from top of deck to bottom of keel 11 ft. 3 in., displacement 550 tons, indicated horse-power 850, her speed at trial 10½ knots, she is fitted with one simple compound, surface condensing engine, and one multitubular Scotch boiler. She is commanded by Captain McGough.

‘ARCTIC.’

This vessel left, again, for the northern waters of Canada, in July, 1906, and returned to Quebec about the middle of October, this year; a full report of the work she has performed will be submitted by Captain Bernier, as soon as possible.

In addition to all the above-named vessels, there are four steam patrol launches, used on the Atlantic coast, for the protection of the fisheries: one on the Pacific, and one on Lake Winnipeg, and two on the River St. Lawrence and Ottawa river, in connection with aids to navigation. The officers and crews of government vessels number approximately eleven hundred, all told.

HALIFAX DOCK YARD.

Since my last report, the Naval Dock Yard, at Halifax, has been entirely taken over by the Department of Marine and Fisheries: the whole of the departmental staff, in Nova Scotia, are now installed in the Dock Yard; the heads of the department, in Halifax, are provided with dwellings in the yard. Most of the government ships in the maritime provinces are laid up, when necessary, during the winter, alongside the wharfs, in the yard, and all repairs that are possible to carry out, are performed by the employees of the department at that place.

I have the honour to be, sir

Your obedient servant,

O. G. V. SPAIN,

Commander Marine Service of Canada.

MARINE AND FISHERIES, CANADA

REPORT

ON THE

RIVER ST. LAWRENCE SHIP CHANNEL

FROM

MONTREAL TO QUEBEC AND FATHER POINT

F. W. COWIE, B.A., Sc., M. CAN. Soc. C.E.,

Superintending Engineer.

APPENDIX No. 5.

RIVER ST. LAWRENCE SHIP CHANNEL.

I have the honour to present the following annual report on the operations for the improvement of the River St. Lawrence ship channel during the nine months ended March 31, 1907.

The announcement in the last report of the completion of the thirty foot channel from Montreal to Batiscan, which by taking advantage of the tides, gives a depth for navigation from Montreal to the sea of 30 feet at the lowest stages of river level; gave very great satisfaction to those interested in the St. Lawrence route.

While every effort has been made to urge forward the work, it is necessary to take very great care to so arrange the operations that navigation is not interrupted, or dredge vessels put in more than the usual danger.

As the last annual report, for the fiscal year ended June 30, 1906, contained complete general information up to the close of the season of 1906, it being of great importance for the immediate use of navigation interests, the greater part of this information is not repeated in this report, in which, however, will be found the usual description, quantities and cost, of the dredging work.

The commencement of dredging operations for the improvement of the ship channel below Quebec marks a new step in the history of this great work for the extension of navigation.

The success of the operations for the improvement of the ship channel, is due in a very large measure, to the skill and energy of the staff in charge, and also to the untiring and careful work of the various captains, engineers, and crews of the different vessels.

I have the honour to be, sir,

Yours obediently,

F. W. COWIE,

Superintending Engineer.

Lieut.-Col. F. GOURDEAU,

Deputy Minister of Marine and Fisheries,
Ottawa, Ont.

INTRODUCTION.

The ship channel of the River St. Lawrence, between Montreal and Father Point, has a total length of about 340 statute miles.

Navigation throughout this distance is under the control of the Montreal and Quebec pilots.

The contracted part of the river, which may properly be called ship channel, extends to the Traverse, to which point, from Montreal, the distance is 220 miles.

The length of the channel actually requiring improvement, by dredging, from Montreal to the Traverse, is about 70 miles. The length of the thirty-foot channel actually completed, at the close of the fiscal year, is 56 miles; leaving 14 miles yet remaining to be dredged, in order to give a clear depth of 30 feet at low tides during the lowest stage of the river level.

From Montreal to Batiscan, the tide is not available for navigation, and in order to enable vessels to load to full depth, the dredging of this part of the river was first undertaken.

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At the close of the season of 1906 we were able to announce the completion of the channel to a depth of 30 feet at the extreme low water of 1897, between the points above mentioned, viz.: Montreal and Batiscan. As the E.L.W. of 1897 was 6 inches lower than the level reached last season, the minimum depth found in the thirty-foot channel, in 1906, was 30 feet 6 inches.

The completed channel has a minimum width, in the straight portions, of 450 feet, and on the curves from 500 to 750 feet. The widening has all been completed, except for a distance of 12·30 miles in the straight portions of Lake St. Peter.

As the dredging is completed the channel is swept and therefore, with the above announcement, an available depth of 30 feet exists from the sea to Montreal, advantage to be taken of the tide up to Batiscan.

The dredging plant will now be concentrated on the work of obtaining a greater width in Lake St. Peter and the tidal parts of the river, as well as the full depth of 30 feet at low tide. About an equal quantity of work requires to be done below Quebec and above Quebec.

In the last annual report the details of the organization for the channel improvements below Quebec, will be found, giving details of the purchase of a suction hopper dredge, as well as the actual commencement of dredging operations.

The launch of the new hydraulic hopper dredge, being built at the government works at Sorel, on December 1, 1906, was also reported.

An appropriation for the construction of a special spoon dredge for Cap à la Roche, having been made by parliament, plans were ordered, and this vessel is to be built at the government works at Sorel.

Attention is again called to the construction in England and the bringing to the St. Lawrence of a powerful and well-equipped ice-breaking, surveying and sweeping tug.

It is probable that no other action on the part of the government, in the way of making navigation safer, could contribute more to amelioration in the excessive insurance rates which have been so detrimental to the St. Lawrence route.

On her first trip after being put into commission, while on an inspection and consultation trip with the minister, the officers of the department, the Shipping Federation of Canada, the presidents of the Boards of Trade of Montreal and Quebec on board, this vessel relieved from a very dangerous position at Cap à la Roche a steamer, which, with its large cargo, was estimated to have a value of \$1,000,000.

By its timely aid the vessel was floated before any serious damage had been done to the ship's bottom, and the Donaldson liner *Athenia* was able to proceed on her voyage to Glasgow without more delay than a few hours, and apparently without injury.

This annual inspection of the ship channel took place in November, 1906, and a thorough examination was made of the river between Montreal and Crane island.

Three days were occupied in observing the work, discussing the merits of the proposed plans, and considering the various recommendations.

Resolutions of approval of the departmental programme have since been received, together with the thanks of these important corporations for having been afforded the opportunity of actually observing the conditions, and placing their recommendations before the department.

In view of the success of the work, and the record of navigation, recognition is again made of the services of the officers of the staff, especially Mr. G. J. Desbarats, director of the shipyard at Sorel, who has the direction of the construction and repairs to the plant; Mr. V. W. Forneret, C.E., who has general local charge of the dredges, and Mr. N. B. McLean, C.E., who conducted the sweeping operations, together with the other members of the staff, as well as the captains and engineers of the dredging plant.

The thirty-foot project was adopted in 1899; in that year with two new dredges, in 1900 with four, in 1901 with five, and from 1902 with seven dredges, the work has been carried on with great vigour.

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The completion of nearly 40,000,000 cubic yards of excavation in ten years was the best estimate given. It is expected that this will be realized, and at the exceedingly low cost, including plant, of less than \$5,000,000.

The total cost from 1851 to the end of the fiscal year, of the ship channel, plant, shops, surveys, &c., is as follows :—

Dredging.	\$ 6,232,647 81
Plant, shops, surveys, &c.	3,112,473 63
	<hr/>
	\$ 9,345,121 44

Before the close of navigation, in November, 1906, the thirty-foot depth was completed from Montreal to Batiscan, from which point to the sea, the same depth, or more, can be carried, by waiting for the tide.

The water in the St. Lawrence, like all North Atlantic rivers, owing to the lack of rainfall, reached a very low stage during the last four months of the season of 1906.

The dredging operations do not, either theoretically or practically, lower the level of the water in the river. No material is removed; it is merely taken from one place and deposited opposite. As long as the water supply remains the same we can rely on the same river level.

The interests of the harbour of Montreal and the navigation of the St. Lawrence must, however, be jealously guarded against any interference with the natural conditions, which will in the least degree diminish the natural flow, during the season of low water.

On the opening of the season of navigation of 1907 the gauge at Sorel will be changed and an additional draught of nearly 4 feet given.

Compared with the lowest stage of water in 1906, the depth will be increased from 26 feet 10 inches to 30 feet 6 inches.

This cannot fail to be of very great importance to the commercial interests of the St. Lawrence.

COST OF SHIP CHANNEL TO DATE.

TABLE showing the Total Cost of the Dredging and Plant, and the Quantities dredged to March 31, 1907.

	Cost of Dredging.	Expenditure for Plant, Shops, Surveys, &c.	Quantities Dredged.
	\$ cts.	\$ cts.	Cu. yds.
<i>Montreal Harbour Commissioners, 1851 to 1888.</i>			
Dredging, Montreal to Cap à la Roche, to 27½ feet at ordinary low water, and from Cap à la Roche to Quebec, to 27½ feet at half tide.....	3,402,494 35	534,809 65	19,865,693
<i>Department of Public Works.</i>			
Dredging, consisting of widening and cleaning up of channel, deepening Cap à la Roche to Cap Charles to 27½ feet at ordinary low water, and dredging at Grondines, Lotbinière and Ste. Croix, 1889 to June 30, 1899.....	829,583 08	486,971 79	3,558,733
Project of 1899—Dredging channel between Montreal and Quebec to 30 feet at lowest water of 1897, also widening to a minimum width of 450 feet and straightening—			
Fiscal year 1899–1900.....	100,191 01	265,270 78	1,107,894
" 1900–1901.....	136,680 83	287,040 04	2,479,385
" 1901–1902.....	185,429 80	479,731 47	3,098,350
" 1902–1903.....	255,776 55	277,703 50	6,544,605
" 1903–1904.....	276,958 59	308,765 44	4,619,260
<i>Department of Marine and Fisheries.</i>			
Fiscal year 1904–1905.....	311,087 93	266,460 33	2,716,220
" 1905–1906.....	431,768 30	125,107 37	4,047,530
" 1906–1907 (July 1, 1906, to March 31, 1907)...	302,677 37	80,613 26	3,001,010
	<hr/> 6,232,647 81	<hr/> 3,112,473 63	<hr/> 51,038,680

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The average depth in the Ship Channel, available for navigation, with the greatest and the least depths in each year, from May to November, since 1890, is given in the following table:—

Year.	AVERAGE DEPTH FOR EACH MONTH.														FROM SOREL GAUGE DURING EACH YEAR, MAY TO NOVEMBER.			
	May.		June.		July.		August.		Sept.		Oct.		Nov.		Highest.		Lowest.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
1890.....	35	6	35	3	31	9	30	6	30	9	29	9	30	6	37	0	29	0
1891.....	34	6	31	3	29	9	29	9	30	0	28	3	28	3	36	9	27	3
1892.....	31	0	31	9	31	6	30	6	28	9	28	3	28	3	33	6	27	3
1893.....	36	0	34	3	30	9	29	9	29	6	28	6	28	0	37	6	27	6
1894.....	34	6	31	9	31	0	29	2	28	3	28	9	29	0	36	0	27	7
1895.....	33	3	31	3	28	3	28	3	27	6	26	9	26	9	34	6	25	10
1896.....	33	6	30	6	28	9	28	0	27	6	27	9	29	0	37	0	27	4
1897.....	35	6	32	6	30	3	29	3	28	0	27	0	27	6	37	0	26	5
1898.....	31	6	30	9	29	8	28	6	28	2	28	3	28	6	32	1	26	9
1899.....	36	2	31	9	30	3	28	6	27	6	28	0	27	9	37	9	26	9
1900.....	33	6	30	9	30	6	29	6	28	1	28	9	29	2	35	9	27	4
1901.....	34	3	31	10	29	2	28	3	27	7	27	4	27	3	36	3	26	6
1902.....	32	2	32	2	32	2	29	4	28	1	28	1	29	0	34	1	27	6
1903.....	33	0	30	11	30	5	29	5	28	4	29	0	27	11	32	8	26	11
1904.....	36	3	34	5	30	9	29	5	29	5	30	4	29	3	37	4	28	1
1905.....	31	10	30	8	29	7	29	0	28	0	28	5	28	1	33	6	27	1
1906.....	32	4	31	5	29	3	27	11	27	3	27	4	27	6	33	3	26	9

DREDGES.

Laval (No. 1).—At the commencement of the fiscal year, July 1, 1906, the *Laval* was working at Longueuil, and after finishing her cut, the dredge cleaned up some lumps found by testing, and completed everything there on August 9, when she was taken to Sorel to have some repairs done and have her buckets and teeth put in good order.

On August 16, she was taken down to Batiscan and laid out to work at the lower end of the Traverse to deepen and widen the channel, the material being clay and stones.

The *Laval* worked at Batiscan Traverse until November 20, when she was taken up to Sorel to go into winter quarters.

In a total number of 121 days during which this dredge was at work, her machinery was in actual operation 63 per cent of the full working time.

The total number of cubic yards dredged amounted to 161,550, at a cost of \$38,596.98, or 23⁸⁹/₁₀₀ cents per cubic yard.

Laurier (No. 2).—At the commencement of the fiscal year, July 1, 1906, the dredge *Laurier* was working at Batture Perron, straightening, deepening, and widening the channel there, the material consisting of clay, sand, and stones.

After completing her cut on July 11, she was laid out to work on Batiscan Curve, widening and deepening, the dredged material being clay and stones. After completing her work there, the *Laurier* was taken up to Sorel to have some repairs done to her buckets. After being repaired, she was taken down to Champlain and laid out on October 12, to clean up some lumps found by testing.

Having cleaned up the lumps, the *Laurier* was taken up on November 7, to work on the channel between Sorel and Ile de Grace, where she remained until taken into winter quarters.

The number of days during which this dredge was in operation was 121, and the percentage of time of actual work, 60.

The total number of cubic yards removed, amounted to 130,300, at a cost of \$32,199.71, or 24⁷¹/₁₀₀ cents per cubic yard.

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Lady Aberdeen (No. 3).—From the commencement of the fiscal year July 1, 1906, to August 28, the *Lady Aberdeen* worked at Champlain Curve, deepening and widening, the material being very hard clay, sand and stones. The dredge was then laid out to work at the upper end of Batiscan Traverse, to deepen and widen the channel, the dredged material consisting of clay and stones.

The dredge worked at Batiscan Traverse until November 13, and was then laid out a little higher up on Batiscan Curve, widening and deepening it, the material being clay and stones.

On November 23, the *Lady Aberdeen* was taken up to Sorel to go into winter quarters.

The working time of the *Lady Aberdeen* was 124 days, the dredge being in actual operation 67 per cent of the full working time.

The total number of cubic yards removed amounted to 256,900, at a total cost of \$32,059.41, or $12\frac{47}{100}$ cents per cubic yard.

Lady Minto (No. 4).—On July 1, 1906, this dredge was working at Batiscan Traverse, deepening and widening the channel, the material consisting of clay and stones. The *Lady Minto* continued working there until taken into winter quarters on November 20.

In a total of 121 days during which this dredge was at work, her machinery was in actual operation 75 per cent of the full working time.

The total quantity dredged amounted to 412,400 cubic yards, at a cost of \$33,463.27 or $8\frac{11}{100}$ cents per cubic yard.

Lafontaine (No. 5).—At the commencement of the fiscal year July 1, 1906, the *Lafontaine* was still working at Longueuil, the material being exceedingly hard to dredge, consisting of hard-pan, clay, stones and some shale rock. The cut was finished on July 10, and this dredge was then taken down to Sorel to get a good overhauling and have a set of new teeth put on the buckets. The repairs being completed, the dredge was taken down on July 20, to begin the work of widening and deepening the Cap à la Roche channel, the material being shale rock. Work was continued there until the vessel had to be taken into winter quarters on November 21.

The number of days during which this dredge was in operation was 121, and the percentage of time of actual work, 67.

The total number of cubic yards removed amounted to 161,400, at a cost of \$42,159.23, or $26\frac{12}{100}$ cents per cubic yard.

Baldwin (No. 6).—From July 1, 1906, to July 11, the *Baldwin* worked at widening, deepening and straightening the channel between Sorel and Ile de Grace. On July 10 she was taken down to Batiscan, and laid out to work on Batiscan Curve to widen and deepen the channel, the material consisting of clay and stones. This dredge continued working there until she finished her cut on November 8. The *Baldwin* was then taken up to work at the head of Lake St. Peter, to widen, deepen and straighten the channel between Ile au Raisin Traverse and Stone Island, the dredged material being soft clay.

This dredge worked there until November 28, when she was taken into winter quarters. The number of days during which the *Baldwin* was in operation was 127, and the percentage of time at actual work, 67.

During this period she removed 519,900 cubic yards, at a total cost of \$37,664.95 or $7\frac{24}{100}$ cents per cubic yard.

J. Israel Tarte (No. 7).—At the commencement of the fiscal year, July 1, 1906, the *Tarte* was still at Sorel having extensive repairs done to her boilers. She had been brought in on June 20. When these repairs were completed on July 5, the dredge was taken back to where she had left off on Lake St. Peter. The *Tarte* continued working on the channel between curve No. 3, Pointe du Lac, and White Buoy Curve, deepening the old channel only, as it was decided to do the widening after the 30-foot channel through the lake was completed. Notwithstanding the loss of time owing to repairs

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required to the boilers, and also by stormy weather, the dredge completed the thirty-foot channel through Lake St. Peter, on November 14, 1906.

It was then decided, owing to the boilers leaking badly, and to the loss of time through bad weather, on account of the season being far advanced, that it would be better to take the *Tarte* into winter quarters.

In the 105 days, the dredge was in actual operation, 54 per cent of the full working time. The total number of cubic yards removed amounted to 1,358,560 at a cost of \$86,533.82, or $6\frac{36}{100}$ cents per cubic yard.

The total number of cubic yards dredged by the fleet between Montreal and Quebec during the fiscal year from July 1, 1906, to March 31, 1907, amounted to 3,001,010, at a cost of \$302,677.37, or an average of $10\frac{8}{100}$ cents per cubic yard.

RIVER ST. LAWRENCE SHIP CHANNEL BELOW QUEBEC.

Suction Dredge 'Galveston.'—On July 1, 1906, the commencement of the fiscal year, the dredge *Galveston* arrived at Quebec from New Orleans under her own steam, having been twenty-nine days on the voyage. She continued on up to Sorel to be thoroughly overhauled and fitted out, additional quarters for the crew being also provided. The organization of the crew was immediately proceeded with, and when completed, the *Galveston* left Sorel to begin work at Beaujeu channel, Crane island, on August 11, 1906.

The dredge stopped at Quebec on her way down, and started for Crane island on August 13, where she was set to work deepening and straightening the Beaujeu channel. The material consisted of coarse sand and gravel, with some layers of soft blue clay.

On August 22 the *Galveston* went into dry dock at Lévis, to have her hopper doors repaired and made tight, as some of the sand ran out. The repairs were completed on September 3, when the dredge returned to Crane island and continued her work.

On October 7, the *Galveston* was caught in a very severe gale, and for a time ran a great risk of being wrecked. The ten-ton suction pipe and derrick broke loose from their lashings, and had to be let go to save the ship. The pipe was raised in a couple of days, but the derrick could not be located for some time owing to a succession of gales. Everything was, however, recovered and the dredge went up to Quebec to have the necessary repairs made.

On October 29, everything was in order again, and the *Galveston* returned to Crane island and resumed work, continuing until November 9, when she stopped for the season.

She then went up to Quebec and was prepared for the voyage to St. John, N.B., where she was ordered, in order to remove some silt which had filled up the Intercolonial Railway berths.

The *Galveston* left Quebec for St. John, N.B., on November 17, 1906. Stoppages were made at Gaspé, Canso, Isaac's harbour, Liscomb, Halifax, Shelburne and Bon Portage, the dredge finally arriving at St. John, N.B., on November 29. Work was commenced on the following day, the material being soft mud on top. The bottom consisted of very hard clay, debris and stones.

On December 24 the turbines broke down, which necessitated the dredge being put into dry dock, and as no dock was available, it was decided to lay her up at St. John for the winter, where she remained until after the end of the fiscal year, March 31.

During the winter, extensive repairs were made and the dredge thoroughly overhauled.

The general dimensions and particulars of the *Galveston*, a steel, twin-screw, suction, hopper dredge, are as follows.—

Length, 233 feet; breadth, 39 feet; depth, 15 feet 5 inches.

Draught when laden with 1,800 tons, 14 feet 9 inches aft, 13 feet 1 inch forward.

Dredges to 55 feet and raises 1,350 cubic yards in 45 minutes.

Hopper capacity, about 1,400 cubic yards.

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Built in 1904.

Engines 2 triple expansion, about 600 I.H.P. each.

Cylinders, $15\frac{3}{4}$ inches, 24 inches and $37\frac{1}{2}$ inches diameter. Stroke, $17\frac{3}{8}$ inches.

Two boilers. Two suction pumps, Dutch type, 8 feet 6 inches outside diameter.

Speed, loaded, 9 miles.

Electric light. Ample crew accommodation.

Arranged for pumping material ashore at a distance of 1,500 to 1,600 feet.

The following tables show in a concise form the progress to date, the details of the operations of the different dredges, the classification of the expenditure, the cost per yard in each locality and the expenditure at Sorel in connection with new plant and the shipyard generally:—

RIVER ST. LAWRENCE SHIP CHANNEL.

ABSTRACT of work of Dredging Fleet during the fiscal year ended March 31, 1907.

Dredge.	Locality of Dredging.	Time of Service.		Nominal Working Time, 24 hours per day.		Hours Actual Dredging.	Number of Sows Filled.	Number of Cubic Yards Dredged (Sow Measurement).	Depth of Dredging at Low Water.		Width.	Character of Soil.	Remarks.
		Days.	Hours.	Time, 24 hours per day.	Hours.				Ft.	In.			
No. 1 (<i>Lucas</i>).	Longueuil.	33	732		534½		83	14,750	30	0	500 to 750	Hardpan, clay, stones and some shale.	Capt. R. Matte.
	Batiscan Traverse.	88	1,932			1,139	878	146,800	30	0	450	Clay and stones.	
		121	2,664			1,673½	961	161,550					
No. 2 (<i>Laurier</i>).	Batture Perron.	8	180		141½		92	20,950	30	0	450	Clay, sand and stones.	Capt. C. Gendron.
	Batiscan Curve.	76	1,668		956½		401½	80,850	30	0		Clay and stones.	
	Champlain.	24	528		350		62½	12,500	30	0		Clay, sand and stones.	
	Ste. Anne de Sorel.	13	288		142		80	16,000	30	0		Soft clay and stone.	
		121	2,664		1,590		638½	130,300					
No. 3 (<i>Lady Aberdeen</i>).	Champlain.	49	1,080		870½		447	87,100	30	0	450	Clay, sand and stones.	Capt. O. Gaucher.
	Batiscan Traverse.	75	1,644		935½		849	169,800				Clay and stones.	
		124	2,724		1,805½		1,296	256,900					
No. 4 (<i>Lady Minto</i>).	Batiscan Traverse.	121	2,664		1,986½		2,062	412,400	30	0	450	Clay and stones.	Capt. B. Ladebauche.
No. 5 (<i>Lafontaine</i>).	Longueuil.	8	180		121		8	2,400	30	0	500 to 700	Hardpan, clay, stones and some shale.	Capt. A. Marcotte.
	Cap à la Roche Curve.	113	2,484		1,650		795	159,000			450 to 550	Shale rock.	
		121	2,664		1,771		803	161,400					
No. 6 (<i>Baldwin</i>).	Ste. Anne de Sorel.	9	204		141½		127	38,100	30	0	450	Sand and soft clay.	Capt. Louis Dauphinais.
	Batiscan Traverse.	101	2,220		1,546½		1,415	424,500	30	0	450	Clay and stones.	
	Ile au Raisin.	17	372		186½		191	57,300	30	0	450	Clay and stones.	
		127	2,796		1,874		1,733	519,900					

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No. 7 (<i>J. Israel Tarte</i>)	Lake St. Peter	105	2,310	1,244½		1,358,560	30	0	300	Soft clay	Capt. J. S. Richard
Total						3,001,010					

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[illegible]

RIVER ST. LAWRENCE SHIP CHANNEL BETWEEN MONTREAL AND QUEBEC.

DETAILS of Dredging, Locality and Cost per Cubic Yard for Fiscal Year ended March 31, 1907.

Dredges.	Total (Cost of (Opera- tions of each Dredge and Plant during Fiscal Year.	Number of Days in Operation each Dredge.	(Cost per Day, (Opera- tions of Dredges and Plant.	Days Working each Locality.	(Cost of Work, each Locality.	Total Cost of (Opera- tions of each Dredge	Number of Cubic Yards Dredged in each Locality.	Total Cubic Yards for each Dredge.	(Cost per Cubic Yard, each Locality.	Average Cost per each Cubic Yard for each Dredge.	Kind of Material Dredged.	Locality of Dredging.
<i>Laurel</i> (No. 1)	38,596 98	121	318 98	33	10,526 44	\$ cts. 38,596 98	14,750	161,550	71.35	Cts. 23.89	Hard-pan, clay, stones and some shale. Clay and stones.	Longueuil. Batiscan Traverse.
<i>Laurel</i> (No. 2)	32,199 71	121	266 11	88	28,070 54	38,596 98	146,800	161,550	19.12	23.89	Clay, sand and stones. Clay and stones. Clay, sand and stones. Clay, sand and stones. Soft clay.	Batture Perron. Batiscan Curve. Champlain. Ste. Anne de Sorel.
<i>Lady Aberdeen</i> (No. 3)	32,059 41	124	258 54	49	12,668 61	32,199 71	87,100	130,300	14.54	24.71	Clay, sand and stones. Clay and stones.	Champlain. Batiscan Traverse.
<i>Lady Minto</i> (No. 4)	33,463 27	121	276 55	75	19,390 80	32,059 41	169,800	256,900	11.42	12.47	Clay and stones. Clay and stones.	Batiscan Traverse. Batiscan Traverse.
<i>Lafontaine</i> (No. 5)	42,159 23	121	348 42	121	33,463 27	33,463 27	412,400	412,400	8.11	8.11	Clay and stones. Hard-pan, clay, stones and some shale.	Batiscan Traverse. Longueuil.
<i>Baldwin</i> (No. 6)	37,664 95	127	296 57	8	2,787 39	33,463 27	2,400	412,400	116.14	26.12	Shale rock. Soft clay. Clay and stones.	Cap à la Roche. Ste. Anne de Sorel. Batiscan Traverse. Ile au Raisin.
<i>J. Israel Tarte</i> (No. 7)	86,533 82	105	824 13	113	39,371 84	37,664 95	159,000	519,900	24.76	7.24	Soft clay. Soft clay.	Lake St. Peter.
	302,677 37	840	840	105	86,533 82	86,533 82	1,358,560	1,358,560	6.26	6.36	Soft clay.	Lake St. Peter.
				840	302,677 37	302,677 37	3,001,010	3,001,010				

DREDGING PLANT.

The following is a description of the dredging plant owned and operated by the Department of Marine and Fisheries in connection with the River St. Lawrence Ship Channel:—

DREDGES.

The Elevator Dredge 'Laval' (No. 1), wooden hull.

Length over all, 150 feet.
Breadth of beam, 30 feet.
Depth of hold, 14 feet.
Average draught, 11 feet.
Greatest working depth, 42·5 feet.
Hull built in Ottawa in 1894.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Laurier' (No. 2), wooden hull.

Length over all, 168 feet.
Breadth of beam, 32 feet.
Depth of hold, 14 feet.
Average draught, 10 feet.
Greatest working depth, 42·5 feet.
Built at Sorel shipyard in 1897.
 $\frac{3}{4}$ cubic yard buckets for hard-pan.
Working capacity per day in fairly stiff clay, 2,000 to 3,000 cubic yards.

The Elevator Dredge 'Lady Aberdeen' (No. 3), steel hull.

Length over all, 148 feet.
Breadth of beam, 32 feet.
Depth of hold, 13 feet.
Average draught, 8·5 feet.
Greatest working depth, 42·5 feet.
Built in Sorel shipyard in 1900.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Lady Minto' (No. 4), steel hull.

Length over all, 148 feet.
Breadth of beam, 32 feet.
Depth of hold, 13 feet.
Average draught, 8·5 feet.
Greatest working depth, 42·5 feet.
Built at Sorel shipyard in 1900.
Steel buckets.
Working capacity per day in stiff clay and stones, 1,000 to 2,000 cubic yards.

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The Elevator Dredge 'Lafontaine' (No. 5), wooden hull.

Length over all, 168 feet.
Breadth of beam, 32 feet.
Depth of hold, 14 feet.
Average draught, 9 feet.
Greatest working depth, 45 feet.
Built at Sorel shipyard in 1901.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Baldwin' (No. 6), wooden hull.

Length over all, 165 feet.
Breadth of beam, 34 feet.
Depth of hold, 14 feet.
Average draught, 8 feet.
Greatest working depth, 45 feet.
Built at Sorel shipyard in 1902.
1 cubic yard buckets strengthened for fairly hard material.
Working capacity per day in medium material, 2,500 to 3,500 cubic yards.

The Hydraulic Dredge 'J. Israel Tarte' (No. 7), steel hull.

Length over all, 160 feet.
Breadth of beam, 42 feet.
Depth of hold, 12·5 feet.
Average draught, 6 feet.
Length of suction frame, 80 feet.
Greatest working depth, 50 feet.
Built at the Polson Iron Works, Toronto, in 1902.
Working capacity per day in soft material, 12,000 to 20,000 cubic yards.

Discharge Pipe and pontoons of Dredge 'J. Israel Tarte' (No. 7).

23 lengths of pipe, 36 ins. diameter by 100 feet long.
1 length of pipe, 36 ins. diameter by 35 feet long.
23 pairs of pontoons for floating pipes, 42 ins. diameter by 90 feet long.

Winch Scow 'No. 3' for Dredge 'J. I. Tarte' (wooden hull).

Length over all, 60 feet.
Breadth of beam, 18 feet.
Depth of hold, 6 feet.
Built at Sorel shipyard in 1902.

Winch Scow (wooden hull) for Dredge 'J. Israel Tarte' (with steam boiler and steam winch).

Length over all, 75 feet.
Breadth of beam, 25 feet.
Depth of hold, 5·5 feet.
Built at Sorel shipyard in 1902.

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The Suction Hopper Dredge 'Galveston,' steel hull, twin screw.

Length over all, 233 feet.
 Breadth of beam, 39 feet.
 Depth of hold, 15 feet 5 ins.
 Draught when loaded with 1,800 tons, 14 feet 9 ins. aft, 13 feet 1 in. forward.
 Greatest working depth, 55 feet.
 Two suction pumps of Dutch type, 8 feet 6 ins. outside diameter.
 Built in 1904.
 Working capacity, 1,350 cubic yards in 45 minutes.
 Hopper capacity, 1,400 cubic yards.

TUGS.

The Ice-breaking and Sweeping Tug 'Lady Grey' (steel hull, twin screw).

	Feet.	Inches.
Length between perpendiculars..	172	0
Length over all....	183	6
Breadth moulded...	32	0
Breadth extreme..	32	3
Depth moulded...	18	0
Draft mean to bottom of flat plate keel (normal).. . . .	12	0
Draft mean, when ice-breaking about.. . . .	13	0

Displacement in tons at 12 foot draft, 1,070.

Mean speed at 12 foot draught on six runs over measured mile base, 14 knot

Built by Vickers, Sons & Maxim, Ltd., Barrow-in-Furness, in 1906.

The Tug 'Frontenac' (composite hull).

Length over all, 113 feet.
 Breadth of beam, 23 feet.
 Depth of hold, 10 feet.
 Average draught, 9 feet.
 Built at Sorel shipyard in 1901.

The Tug 'Eureka' (steel hull).

Length over all, 100 feet.
 Breadth of beam, 22 feet.
 Depth of hold, 12 feet.
 Average draught, 11 feet.
 Built in Glasgow, Scotland, in 1893.

The Tug 'James Howden' (wooden hull).

Length over all, 100 feet.
 Breadth of beam, 21 feet.
 Depth of hold, 10 feet.
 Average draught, 7.5 feet.
 Built at Sorel shipyard in 1903.

The Tug 'St. Jean-Iberville' (steel hull).

Length over all, 90 feet.
 Breadth of beam, 18 feet.
 Depth of hold, 12 feet.
 Average draught, 10 feet.
 Built at Sorel shipyard in 1897.

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The Tug 'Lac St. Pierre' (wooden hull).

Length over all, 100 feet.
Breadth of beam, 21 feet.
Depth of hold, 10 feet.
Average draught, 7·6 feet.
Built at Sorel shipyard in 1901.

The Tug 'St. Francis' (wooden hull).

Length over all, 80 feet.
Breadth of beam, 17 feet.
Depth of hold, 10·8 feet.
Average draught, 9 feet.
Built in 1875.

The Tug 'Cartier' (wooden hull)

Length over all, 84 feet.
Breadth of beam, 18 feet.
Depth of hold, 9·5 feet.
Average draught, 8 feet.
Built at Sorel shipyard in 1893.

The Tug 'Emilia' (wooden hull).

Length over all, 84 feet.
Breadth of beam, 17 feet.
Depth of hold, 9 feet.
Average draught, 7·5 feet.
Built at Sorel shipyard in 1898.

The Tug 'Champlain' (wooden hull).

Length over all, 84 feet.
Breadth of beam, 17 feet.
Depth of hold, 9 feet.
Average draught, 7·5 feet.
Built at Sorel shipyard in 1901.

The Tug 'Jessie Humé' (wooden hull)

Length over all, 72 feet.
Breadth of beam, 17·3 feet.
Depth of hold, 10 feet.
Average draught, 8·5 feet.
Built in Buffalo in 1878.

The Tug 'Montcalm' (wooden hull).

Length over all, 80 feet.
Breadth of beam, 23 feet.
Depth of hold, 8 feet.
Average draught, 6·5 feet.
Built at Sorel shipyard in 1903.

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The Tug 'Carmelia' (wooden hull).

Length over all, 84 feet.
Breadth of beam, 17 feet.
Depth of hold, 9 feet.
Average draught, 7.5 feet.
Purchased in 1903.

COAL BARGES.

The Coal Barge 'No. 1' (wooden hull).

Length over all, 120 feet.
Breadth of beam, 24 feet.
Depth of hold, 10 feet.
Built at Sorel shipyard in 1898.

The Coal Barge 'No. 2' (wooden hull).

Length over all, 125 feet.
Breadth of beam, 25 feet.
Depth of hold, 11 feet.
Built at Sorel shipyard in 1900.

The Coal Barge 'No. 3' (wooden hull).

Length over all, 98 feet.
Breadth of beam, 28 feet.
Depth of hold, 12 feet.
Built at Sorel shipyard in 1902.

The Coal Barge 'No. 4' (wooden hull).

Length over all, 98 feet.
Breadth of beam, 28 feet.
Depth of hold, 12 feet.
Built at Sorel shipyard in 1903.

Stone-lifter 'No. 2' (wooden hull).

Length over all, 80 feet.
Breadth of beam, 25 feet.
Depth of hold, 9.8 feet.
Rebuilt at Sorel shipyard in 1897.

Stone-lifter 'No. 3' (wooden hull).

Length over all, 108 feet.
Breadth of beam, 34 feet.
Depth of hold, 14 feet.
Built at Sorel shipyard in 1903.

Sounding Scow (wooden hull).

Length over all, 60 feet.
Breadth of beam, 25 feet.
Depth of hold, 6 feet.
Built at Sorel shipyard in 1898.

Coal Scow 'No. 2' (wooden hull).

Length over all, 54 feet.
Breadth of beam, 18 feet.
Depth of hold, 4 feet.
Built at Sorel shipyard in 1892.

Six Lodging Scows (wooden hulls).

Rebuilt from old dump scows and fitted out as lodging scows for crews of dredges and tugs of ship channel fleet, at Sorel shipyard in 1899, 1901 and 1902.

HOPPER SCOWS.

1 Hopper Scow (wooden hull) with hydraulic power for closing gates.

Length over all, 97 feet.
Breadth of beam, 24·5.
Depth of hold, 9 feet.
Capacity, 200 cubic yards.
Built at Sorel shipyard in 1897.

2 Hopper Scows (wooden hulls) with hydraulic power for closing gates.

Length over all, 90 feet.
Breadth of beam, 18 feet.
Depth of hold, 7 feet.
Capacity, 150 cubic yards.
Built at Sorel shipyard in 1898.

4 Hopper Scows (wooden hulls) with hydraulic power for closing gates.

Length over all, 97 feet.
Breadth of beam, 24 feet.
Depth of hold, 9 feet.
Capacity, 200 cubic yards.
Built at Sorel shipyard in 1899 and 1901.

5 Hopper Scows (wooden hulls) with hydraulic power for closing gates.

Length over all, 98 feet.
Breadth of beam, 24 feet.
Depth of hold, 9·5 feet.
Capacity, 300 cubic yards.
Built at Sorel shipyard, 2 in 1901, 3 in 1902.

2 Hopper Scows (wooden hulls) with hydraulic power for closing gates.

Length over all, 97 feet.
Breadth of beam, 24·5 feet.
Depth of hold, 9 feet.
Capacity, 300 cubic yards.
Built at Sorel shipyard in 1903.

APPENDIX No. 6.

SOREL SHIPYARD.

Lt.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to report on the work done at the Sorel Shipyard during the nine months ended March 31, 1907.

Sea-going hopper suction dredge.—This steel dredge is being built for use on the St. Lawrence Ship Channel, and construction on the hull proceeded during this fiscal year. The vessel was begun in January, 1906, and was launched on December 1 of the same year. This dredge is a twin-screw vessel, and the propelling engines consist of two triple expansion engines with cylinders 15, 24 and 39 inches in diameter by 24 inches stroke. These engines were received in January, 1907, and were installed in the dredge during the winter.

The suction pump on this dredge is driven by a triple expansion engine with cylinders 15, 24 and 39 inches diameter, by 24 inches stroke. This engine and pump were furnished by the Polson Iron Works of Toronto. They were delivered at Sorel in March, 1907, and were installed in the dredge in the spring of the same year.

The steam for the machinery is furnished by two cylindrical marine boilers, 13 feet 6 inches in diameter by 11 inches in length, with three furnaces of 40 inches diameter each, and by one donkey-boiler, 5 feet diameter by 9 feet high, the pressure carried being 180 pounds. These boilers were built at the Sorel shipyard. The steam piping of the vessel is of copper, and all the dredge is finished to the highest standard of salt water marine work.

The construction of the dredge was completed at the end of September, 1907, and the dredge was tested with very satisfactory results at the beginning of October.

Steamer 'Verchères'.—This is a small wooden steamer for the use of the lighthouse-steeple construction staff between Montreal and Quebec. The hull is 100 feet in length by 16 feet beam by 9 feet depth, with a draft of 8 feet and a displacement of 126 tons. Work on this boat was begun in January, 1906, and the vessel was launched at the end of July.

The vessel is propelled by a triple compound engine, which was built at the Sorel shipyard. This engine has cylinders 13 and 24 inches in diameter by 18 inches stroke, and drives a wheel 6 feet 6 inches diameter.

The boiler, which was also built at the Sorel shipyard is of the bricked in, marine type, carrying a steam pressure of 140 lb. The vessel was finished and equipped during the summer of 1906 and went into commission in October of the same year.

Steamer 'Rouville'.—This is a wooden steamer built for the use of the Mounted Police Department, in Hudson bay. The hull is 130 feet over all by 26 foot beam by 16 feet deep with a draft of water of 12 feet 6 inches. This vessel was completed in July, 1906. It was decided to use her first for inspection and survey purposes, on the St. Lawrence ship channel and she was equipped with a sounding and testing apparatus for this purpose and went into commission in the month of August.

Ice-breaker Steamer 'Montcalm'.—In November, 1906, important repairs and alterations were made to the steamer *Montcalm*.

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A strengthening belt of steel $\frac{3}{4}$ inches thick was added to each side of the vessel at the water line, from the bow for a distance of 70 feet aft.

The sides of the well deck forward were carried up to the level of the spar deck and the spar deck extended to cover this space.

The wheel-house was enlarged by the addition of a chart room. The captain's room was enlarged. A room was installed for the first engineer. A steel tunnel 40 feet long by 8 feet high was built through the coal bunker to provide a passage for the firemen. The electric wiring of the ship was overhauled. A number of new side lights were fitted and a number of minor alterations were made to the wood work. The vessel was painted and some of the auxiliary machinery was overhauled.

Dredge 'Galveston.'—This dredge arrived at Sorel from New Orleans on July 2. Her bridge deck was enlarged and a deck-house was erected with galley, mess room and accommodation for the officers. Side bunkers of steel were built in the vessel. The boilers and machinery were overhauled and necessary repairs were made to the dredging machinery. The hull was scraped and painted and the vessel left the shipyard on August 11.

New construction for dredging fleet.—Dredge No. 2 was fitted with a new chain of buckets for rock dredging. A new bow cable winch was built and erected. The dredge was hauled out during the winter and the ends of her well and parts of the sides of the well, were renewed. The hull was gone over, caulked and painted and all defective parts renewed.

Dump Scow No. 4 was practically rebuilt. The hull being in very bad condition a new wheel house with captain's room attached, was built on the upper deck of the tug *Lac St. Pierre*, replacing the old wheel house on the main deck.

Hydrographic Survey.—Extensive repairs and alterations were made to the survey steamer *La Canadienne*.

The main engine was taken apart, the cylinder and valves trued, the pistons turned and fitted, the rods turned, valves adjusted and the engine thoroughly repaired. A Weir evaporator was supplied and fitted. The condenser was repaired, new tube plates and new tubes supplied and fitted. A circulating and a sanitary pump installed. The bridge deck was strengthened, and numerous alterations made in the officers' and crew's quarters. Bridge stanchions and awnings were fitted and a bridge telegraph installed.

The survey steamer *De Lévis* was kept in repair during the year and supplies were furnished.

Public Works Department.—Several of the vessels belonging to the dredging fleet of the Public Works Department, were repaired at the shipyard during the year 1906-7, and spare parts were furnished. Coal and other supplies were furnished to the vessels of the Public Works dredging fleet working in the Sorel district.

Repair work for St. Lawrence Ship Channel.—The hulls and machinery of the vessels of the St. Lawrence ship channel dredging fleet were maintained in good condition during the fiscal year 1906-7. During the winter the machinery was completely overhauled and repaired. The hulls and cabin work were painted and the equipment was repaired and put in proper condition. Coal, oils and all the supplies necessary to the equipment and operation of the dredging fleet during the season, were furnished from the Sorel shipyard.

Dredge No. 1 had heavy repairs to one of her boilers. The upper tumbler was renewed during the winter. A complete set of forged iron centre teeth was supplied to this dredge.

Dredge No. 3 had a complete set of new bucket teeth. The boilers were caulked and the bucket frame straightened out.

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Two large breasting winches using wire rope were built and installed on dredge No. 5, to replace the old chain winches which were previously used on this dredge.

Dredge No. 6 had a new top tumbler and new main gearing.

Dredge No. 7 had heavy repairs to the boilers during the summer season and during the winter months. The floating pipe line of this dredge was all hauled out during the winter and as the pipes were nearly worn out a doubling plate was fitted to the bottom of the pipes.

The tug *Jessie Hume* was hauled out during the winter and heavy repairs made to her upper works.

Improvements to shipyard.—The sawmill which was begun in the previous year was finished in this year. This is a building with a stone foundation, 60 feet by 70 feet. This foundation is surmounted by a two-story wooden building of slow burning mill construction. The lower floor is devoted to the sawmill proper. It contains a band saw capable of sawing timber up to 40 inches square, a wood planer, moulding machine, small circular saw, &c.

Two low wings, each 28 by 55 feet, contain the saw carriage which handles timber up to 70 feet in length. A log-hauling chain extends to the river and hauls logs from the timber pond up to the mill.

In the upper story of the mill is installed the sash and door machinery and the machinery for sharpening, tempering and welding saws.

An electric motor of 100 horse-power, placed in the basement of the mill, gives power to all the machinery. A fan is provided which takes all the chips and sawdust from the different tools and blows them through a long pipe to a dump at a distance from the sawmill.

During the summer the electric pumps were installed in a cement pit which was sunk at the power-house. The shipyard has now an ample supply of water for general use and good pressure in case of fire.

A three-story shed, 100 feet by 30 feet, was built for storing the stock and material which is removed from the different vessels of the fleet for the winter. In this shed, separate rooms are provided for each vessel so that its stock can be securely stored without any chance of confusion with the stock of any other vessel.

During the summer a slip way was built so as to enable the shipyard to haul out and repair the dredges of the ship channel fleet. The shore part of this slipway is on pile foundation and the underwater part on a timber crib.

The hauling machinery from the old slip was adapted to this new slip way, but will have to be further strengthened. A large pulley block was built for this slipway with eleven strands of 1½-inch steel wire rope. The machinery gives a direct pull of 100 tons and vessels of 1,500 tons displacement can be hauled on this ship.

General.—All the buildings of the shipyard were painted during the year and all machinery was maintained in a good state of efficiency. The working force at the shipyard during the year varied from 500 to 850 men, and averaged 680.

The financial statement, which I append, shows that the total amount expended at the Sorel shipyard during the nine months of the fiscal year 1906-7, was \$678,803.57.

Yours obediently,

G. J. O. DESBARATS,
Director of Shipyard.

GOVERNMENT SHIPYARD, SOREL.

STATEMENT of Revenue and Expenditure for the Fiscal Year 1906-1907.

Year.	Amount.	Year.	Amount.
	\$ cts.		\$ cts.
March 31..	To Appropriation for ship channel actually expended.....	March 31..	By Operating dredging fleet..... \$302,677 37
" 31..	Appropriation for construction of sea-going hopper dredge.....	" 31..	(Construction for dredging fleet..... 23,114 55
" 31..	Appropriation for construction of patrol boat, str. <i>Rouville</i>	" 31..	Improvements to Sorel shipyard..... 41,336 26
" 31..	Construction of lights, P.Q.....	" 31..	Stores and materials..... 16,162 45
" 31..	Maintenance of lights, P.Q.....	" 31..	Construction of sea-going hopper dredge.....
" 31..	Str. <i>Arctic</i>	" 31..	" patrol boat str. <i>Rouville</i>
" 31..	Construction dredge, <i>Cap a Laroche</i>	" 31..	" lights, P.Q.....
" 31..	Str. <i>Maisonneuve</i>	" 31..	" dredge <i>Cap a Laroche</i>
" 31..	Marine stores, Ottawa.....	" 31..	str. <i>Vercheres</i>
" 31..	Construction str. <i>Vercheres</i>	" 31..	Str. <i>Lady Grey</i> , improvements to vessel.....
" 31..	Str. <i>Scout</i>	" 31..	Maintenance of lights, P.Q., repairs and supplies.....
" 31..	Hydrographic survey.....	" 31..	Str. <i>Arctic</i> , repairs and supplies.....
" 31..	Mounted Police.....	" 31..	Str. <i>Maisonneuve</i> , repairs and supplies.....
" 31..	Dredge <i>Galveston</i>	" 31..	Str. <i>Scout</i> , electric equipment.....
" 31..	Str. <i>Lady Grey</i>	" 31..	Marine stores, Ottawa electric equipment.....
" 31..	Department of Public Works.....	" 31..	Dredge <i>Galveston</i> , repairs and supplies... \$ 15,489 16
" 31..	Refunds.....	" 31..	str. <i>Rouville</i> , services.. 6,894 54
		" 31..	Hydrographic survey—
			General account, supplies..... 56 67
			Str. <i>La Canadienne</i> , repairs and supplies.....
			Str. <i>De Levis</i> , repairs and supplies..... 7,341 82
			Mounted Police..... 1,243 73
			Administration of pilotage—
			Str. <i>Eureka</i> , repairs.....
			Department of Public Works, expenditure on repairs and supplies to dredges, tugs, &c.....
			S.S. <i>Montcalm</i> , repairs and supplies.....
	678,803 57		678,803 57

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APPENDIX No. 7.

HYDROGRAPHIC SURVEY.

OCTOBER 19, 1907.

The Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to present the following report upon the progress of the Hydrographic Survey during the past season.

I regret to say that owing to the fact that the season is drawing to a close, and that none of the parties have yet returned to Ottawa, I am able to give an idea, in a general way only, of the work done during the past season, gathered from progress reports sent in from time to time.

The time of all parties last winter was fully occupied in preparing previous season's work for publication, and as a result the following photo-lithographed charts were published:—St. Lawrence river charts Nos. 9, 10, 11, 12, 13, 14, 15, 16.

The following have been prepared for the engraver:—‘Pigeon River to Thunder Cape’ and ‘Thunder Cape to Lamb Island’ upon the great lakes, and are almost ready for distribution.

The following are on hand waiting an opportune time to deliver to an engraver:—Lake St. Louis and Orignaux Point to Cacouna Island on the St. Lawrence. It is hoped that all these will be on sale before the opening of navigation. On the British Columbia coast a preliminary photo-lithographed chart of the entrance to Prince Rupert Harbour as a result of the work of 1906, was issued; and during the past season some further blue prints of additional work have been issued.

British Columbia.—About March 1, Captain Musgrave started a camp party at Prince Rupert, B.C., sounding out the harbour, the entrance as far south as Lawyer island, and the entrance of Skeena river. He was assisted by Messrs. H. D. Parizeau and L. R. Davies. I regret to say that, owing principally to the unsettled state of the labour market in British Columbia and the large amount of fog and rain in that locality, the amount of work done is hardly in keeping with the cost. Next season it is hoped that the new steamer will be in commission and that a distribution of the party will be possible so that Mr. Parizeau will work with a separate outfit.

Great Lakes.—About May 15, Captain Fred. Anderson, with the steamer *Bayfield*, resumed operations on Lake Superior working on the outside coast between Lamb island and Jackfish bay. He has made very fair progress, but was troubled by fog. On October 1, he moved to Key inlet, Georgian bay, a new harbour being developed by the Canadian Northern Ontario Railway Company. This locality received a very superficial examination in 1885 by Captain Boulton, as it was considered unlikely that any use would ever be made of it. His work there is principally with a view to reporting upon a scheme for placing aids to navigation, to render the harbour safe for vessels, that are to carry coal and iron ore.

He has for assistants Messrs. A. G. Bachand and A. E. Humphrey, both of whom are giving good satisfaction.

Atlantic Coast.—About May 15, Captain Irving Miles, on the steamer *La Canadienne*, left Sorel for operations in the vicinity of the mouth of Saguenay river, and has continued there since. His work started at the northwest end of Hare island, working out of the river as time progresses.

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Surveying in this locality is very arduous, strong tides with very heavy tide rips make work in boats, with young inexperienced officers and crews, very dangerous even upon fine days.

The weather, upon which nearly all success depends, has not been propitious, fogs and strong winds have followed one another in quick succession; however, very fair progress has been made, considering the many difficulties.

A word about the steamer, which is very old and not very powerful. Any system of surveying a river forces the surveyor to sound in parallel lines, crossing and re-crossing. The steamer can, at best in smooth water, steam eight knots. The tide frequently runs four knots, so that it may be seen that she is unable to keep on a course directly at right angles to the trend of the river and the stream. Then again, in changing from line to line upon the completion of one, the steamer is hardly able to make headway. This trouble was frequently experienced during the past season, even in comparatively fine weather, and work had to be discontinued. Captain Miles was ably assisted by Messrs. Chas. Savary, G. Cavendish Venn and W. R. McGee.

St. Lawrence river between Montreal and Quebec.—This survey is almost completed, and the energies of the staff have been devoted to the preparation of charts, sixteen of which have so far been issued to the general public. Mr. Arthur Amos is in charge of this important work, and has upon his staff for field work:—Messrs. Chas. McGreevy and Paul Jobin, for office work, Messrs. Henri Melançon, Frederick Delaute, Oswald Soulière and Edouard Jodoin. Very little field work was done during the season, principally additions to charts in the course of preparation.

Lake of Two Mountains.—This survey started work about May 7, under Mr. Pinet, with assistants, Messrs. G. B. St. Pierre and Henri Ortiz, with a house-boat and steam launch. Work here has been in a rather sheltered locality, and good progress has been made, but probably part of a season will yet be required to complete.

Lake St. Francis.—Mr. Robert Bickerdike has charge of this survey, but he was only about a month in the field, filling some details found wanting after plotting his previous season's operations. With the completion of this survey and that of Lake St. Louis, charts of the St. Lawrence river, Cornwall, or the international boundary line, to Montreal will soon be available.

All the parties (except that in British Columbia) now in the field will return to Ottawa about November 1, and complete the plotting of the summer work and prepare charts for publication. The British Columbia party under Captain Musgrave will take up residence in Victoria.

Advantage was taken of the small amount of field work being done by Mr. Amos and his party, to detail him for a more extended series of observations for magnetic declination and incidentally for latitudes and azimuths. As a result magnetic observations were obtained at four places in the vicinity of the Saguenay river, five places upon the north shore of Lake Superior and seven places along the St. Lawrence river between Cornwall and Montreal. The results have not been worked out as yet, but they will add very materially to our knowledge of the workings of that most important instrument of navigation, 'The Mariner's Compass.'

I am sir, your obedient servant,

WM. J. STEWART,
Hydrographer.

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APPENDIX No. 8.

WIRELESS TELEGRAPH STATIONS.

OTTAWA, October 22, 1907.

Lt.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I beg to submit my annual report on the working of the wireless stations belonging to this department. During the last year, there was a total of fifteen wireless stations in operation, consisting of nine high-power and six low-power stations, the high-power stations having a normal range of about one hundred and twenty-five miles, the low-power stations, a normal range of about sixty miles.

During the past year, there has been a few interruptions to the service. The stations which were out of commission are the following:—Cape Sable, which was struck by lightning on August 2, 1907, and suffered slight damage, repairs being made very promptly; Sydney station, smallpox having broken out at this station, it was necessary to place same in quarantine; this interfered but slightly with the service.

Point Rich station was out of operation for a period of three or four weeks, due to an accident to the gasoline engine. This happened at the close of last season, and, from reports received from the Marconi Company, did not interfere with the service.

The Partridge Island station was out of commission for quite a lengthy period, last summer, due to the mismanagement on the part of the officer in charge. An amount of \$583.33 was deducted from the Marconi Company's account for the maintenance of this station, and the officer in charge, I understand, has been discharged from the service.

The two new stations which were built by the Marconi Company, for this department, located at Father Point and Clark City, were completed during the month of December, 1906. During the past summer, these stations have rendered valuable service to the shipping interests.

There was an unfortunate delay in the opening of the stations, last spring. The Marconi Company advised the department, on April 17, to the effect that operators and stores necessary for the opening of the wireless stations would be forwarded to Pictou, N.S., in time to leave by June 10, and requesting that transportation be provided. On or about April 20, Commander Spain was notified of the requirements of the Marconi Company and asked to provide a boat. The Marconi Company was advised that all arrangements had been made, and were requested to communicate with Commander Spain on or about May 20, in order that there might be no misunderstanding regarding the arrangements made. I understand that, on account of the C.G.S. *Stanley* being obliged to proceed to Scotland for the purpose of having new boilers installed, and also on account of an accident to the C.G.S. *Montcalm*, no boat was provided until July 10, which delayed the opening of the gulf stations one month later than was anticipated.

It was decided, during the past year, to take over the absolute control of the wireless service on board government vessels. Heretofore, this service had been performed by the Marconi Company. The operators, being in the employ of the Marconi Company, did not consider themselves amenable to ship discipline. This interfered, to a very large extent, with the giving of a satisfactory service. Furthermore, the appa-

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tus on board the ships was in a most unsatisfactory condition, due to the fact that the department had no control over same. The service was taken over on March 1, 1907. All the different wireless equipments on board of these vessels have been completely overhauled and put into first-class condition.

During the past year, the Act governing wireless telegraphy, part 4, chapter 126, R.S.C., 1906, was put into effect, and licenses were prepared in accordance with said Act. Seven licenses have been issued to the Marconi Company, none of which have been accepted by them, due to the fact that it is claimed, on the part of the Marconi Company, that the form of license adopted infringes their contract rights. A form of license was submitted to the Department of Justice, accompanied by the contracts existing between the government and the Marconi Company, in order to ascertain if there was anything in the terms of the license which would infringe the contract rights of the Marconi Company. Several changes were suggested and incorporated in the form of license adopted and which the Department of Justice reported was in accordance with the contracts now existing between the Marconi Company and the government. The Marconi Company, as above stated, has refused to accept the above licenses and the matter is now receiving the consideration of the department.

A license was granted to the Dominion DeForest Wireless Telegraph Company, permitting the establishment of an experimental license on Grindstone island. All licenses issued have been for a term of one year.

It was decided, during the past year, to install wireless stations on the coast of British Columbia, same to serve as an aid to navigation as well as a means of communication along the west coast of Vancouver island. These stations are now under construction and it is expected that all will be in operation before January 1, 1908. The system adopted in these western stations is known as the Shoemaker system and, when completed, these stations will be, undoubtedly, the most up-to-date and complete wireless stations on this continent. As these stations are to be used as an aid to navigation and as there are several boats calling at British Columbia ports, such as Victoria and Vancouver, equipped with the Massie system, it was impossible for this department to install any system of wireless apparatus on the west coast which could not be used to communicate with vessels irrespective of the system used by them.

As all the government stations on the east coast are equipped with the Marconi system, I think a statement of the reasons which led this department to change from the Marconi to another system will not be out of place. As above stated, owing to the nature of these stations, it was absolutely essential that they should be available for intercommunication with any vessels or stations, irrespective of the system adopted, and, as the principle of intercommunication has never been accepted by the Marconi Company, this reason alone would justify the department in taking the stand it did. Apart from the above reasons, a very close study was made of the comparative cost of maintaining wireless apparatus of different make. These costs were obtained from the companies themselves and, on the figures submitted, there was such a large difference in favour of the system adopted, *i.e.*, Shoemaker, that other things being equal, the department was perfectly justified in adopting this system. The system adopted is unquestionably more up-to-date and better than that in use in the gulf stations, to say nothing of the fact that the original cost was lower and cost of maintenance considerably less, as is shown by the figures submitted by the Marconi Company.

Last fall all the wireless stations belonging to the government were visited and found to be in a fairly satisfactory condition. Some of the apparatus installed in some of the stations was of a very crude nature, which, in my opinion, should have been replaced by more up-to-date apparatus. The Marconi Company's attention was called to this matter and they have, I understand, replaced same.

No general inspection of the government wireless stations has been made this year on account of the department being unable to place a boat at the disposal of the undersigned for the purpose of making this inspection.

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The following statement shows the number of messages received and sent from the different stations:—

	Private.	Service.	Government.
Cape Ray.....	909	713	148
Heath Point.....	182	212	106
St. John.....	2	34	.....
Whittle Rocks.....	1	90	5
Pt. Amour.....	12	93	22
Pt. Rich.....	23	86	12
Cape Race.....	2,161	1,591	10
Fame Point.....	663	1,521	1,022
Cape Sable.....	632	1,318	134
Belle Isle.....	106	.....	12
	4,691	5,658	1 471

I have the honour to be, sir,
 Your obedient servant,
 CECIL DOUTRE.
Superintendent Government Wireless Stations.

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APPENDIX No. 9.

METEOROLOGICAL SERVICE.

METEOROLOGICAL OFFICE,

Lt.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa.

TORONTO, August, 1907.

SIR,—I have the honour to submit the thirty-sixth annual report of the Meteorological Service of Canada, this report being for the fiscal year (nine months) July 1, 1906, to March 31, 1907, with appendices 'A' and 'B,' reports of St. John and Quebec observatories.

The number of persons in receipt of pay from the Meteorological Service on March 30, for various duties performed in connection therewith, was 216. Of this number 21 were employed in the central office, and with a few at outside stations, devote their whole time to the work of the service; others are occupied in observing during only a portion of each day, and others again are employed only to attend to the display of storm signals when notified.

There are now in the Dominion, Newfoundland, and Bermuda, 423 stations which have been supplied with instruments by this service. At 40 stations distributed at nearly equal intervals throughout Canada, three or more observations are taken daily, and each morning and evening reports are telegraphed to Toronto. At 49 other points observers receive remuneration for a more or less extended series of observations. Special observations for the Western Bulletin Service are taken at 26 places where small gratuities are paid. Eighty-four persons are paid for attending to the display of storm signals alone, and for the time service and special telegraph service 6 persons are employed.

Since the issue of the last report, the following stations have commenced reporting:—

BRITISH COLUMBIA.

Class III.—Denman Island.
" II.—Tzouhalem.
" I.—Savonas.
" II.—Penticton.

YUKON TERRITORY.

Class II.—Conrad.

HUDSON'S BAY.

Class I.—Churchill.

ALBERTA.

Class III.—Bittern Lake.
St. Paul Des Metis.
McLeod.
Vermilion.
Islay.
Clover Bar.
Bismark.
Doreenlee.
Mayton.
Morinville.
Ponoka.

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Class II.—Lawrence.
Red Willow.
Taber.
Nanton.
High River.

SASKATCHEWAN.

Class II.—Humbolt.

ONTARIO.

Class II.—Copper Cliff.
Barrie.
Coldwater.
Huntsville.

QUEBEC.

Class II.—Ste. Anne de Bellevue.
Paspébiac.

NEW BRUNSWICK.

Class II.—Woodstock.
Parma and Yyoming, Ontario, have been closed.

CENTRAL OFFICE.

During the past year the university building operations in progress on the land immediately adjoining the meteorological office, have made the occupation of our building most unpleasant and wholly unsatisfactory. Dust enters by every window, door and crevice; while assistants going and coming by a muddy pathway between the main building and the cottage used in place of that part of the observatory which was demolished last year, bring mud into the halls and render it impossible to keep the floors in a cleanly state. In addition to this the accommodation for the staff which for some years has been quite inadequate, is now distressingly meagre, and with steam derricks and cement crushers at work outside the windows, our officers are performing their duties under great difficulties.

I would also draw your attention to the fact that our observatory now partially blocks the entrance to two large handsome university structures, and that the college authorities are very desirous of the demolition of the building. I respectfully urge that the proposed new meteorological building be erected with as little delay as possible.

Towards the end of March the permanent staff of the meteorological office suffered a serious loss in the death of W. A. Steuart, its oldest member, who had first become connected with the observatory in 1851. Mr. Steuart was a careful and accurate computer to the day of his death, and was invaluable as a member of the central office staff—one whom it will be difficult to replace.

In order to keep the computations for the various meteorological publications up to date, it has been found necessary to employ temporary clerks for short periods.

The daily weather map, the monthly review and monthly weather map, each of them entailing much work have been issued with regularity and the Special Meteorological Register for 1906 has also been printed and distributed.

The daily map hitherto manifolded by means of the mimeograph will in future be printed. The lines indicating barometric pressure and the symbols for wind and weather are stereotyped from a chalk plate prepared in the meteorological office, and the final press work is done by the University Press nearby. There can be no question that the new process is a marked improvement on the old and the new map has a most creditable appearance.

All storm warnings and weather forecasts for the various parts of Canada exclusive of British Columbia have, as in the past, been issued from the central office, while those for British Columbia have been issued from Victoria, B.C. The following table shows the percentage of verification of the forecasts:—

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NUMBER of Predictions and Percentage of Fulfilment in each district and for the nine months ending March 31, 1907.

Month.	LOWER LAKES.				OTTAWA VALLEY.				UPPER ST. LAWRENCE.				LOWER ST. LAWRENCE.			
	Verified.				Verified.				Verified.				Verified.			
	Number of Forecasts.				Number of Forecasts.				Number of Forecasts.				Number of Forecasts.			
	Number fully.	Number partly.	Number not.	Percentage.	Number fully.	Number partly.	Number not.	Percentage.	Number fully.	Number partly.	Number not.	Percentage.	Number fully.	Number partly.	Number not.	Percentage.
1906.																
July...	107	9	1	95.3	106	7	1	96.1	114	105	8	95.6	107	12	0	94.9
August...	108	15	5	90.2	94	20	1	90.4	116	94	20	89.6	93	20	3	87.3
September...	91	18	2	90.1	78	16	8	84.3	102	83	11	86.8	84	23	13	79.6
October...	103	29	4	86.4	90	17	9	84.9	115	89	19	85.6	88	18	17	78.9
November...	96	22	6	86.3	72	24	9	80.0	104	75	20	81.7	93	17	11	83.9
December...	103	17	5	89.2	88	19	9	84.0	116	86	23	84.0	85	19	14	80.1
1907.																
January...	74	22	8	81.7	73	31	6	80.4	110	75	28	80.9	78	20	11	80.7
February...	78	19	5	85.8	67	12	9	82.9	89	67	15	83.7	81	16	5	87.2
March...	72	16	6	85.1	71	18	9	81.6	98	73	18	83.7	65	15	9	81.5
Totals...	832	167	42	87.9	739	164	61	85.2	964	747	162	85.9	774	160	85	83.8

NUMBER OF PREDICTIONS AND PERCENTAGE OF FULFILMENT IN EACH DISTRICT AND FOR THE NINE MONTHS ENDING MARCH 31, 1907.

Month.	GULF.				MARITIME WEST.				MARITIME EAST.				TOTALS.											
	Verified.				Verified.				Verified.				Verified.											
	Number fully.		Number partly.		Number not.		Percentage.		Number fully.		Number partly.		Number not.		Percentage.		Number fully.		Number partly.		Number not.		Percentage.	
	Number of Forecasts.				Number of Forecasts.				Number of Forecasts.				Number of Forecasts.				Number of Forecasts.				Number of Forecasts.			
1906.																								
July.....	120	109	10	1	95.0	116	89	20	7	85.3	117	94	15	8	86.7	1317	1149	137	31	29.4				
August.....	120	99	15	6	88.7	125	102	19	4	89.2	125	104	19	2	90.8	1344	1084	212	48	28.5				
September.....	121	81	31	9	79.7	119	94	18	7	86.6	119	96	14	9	86.6	1227	942	212	73	25.4				
October.....	122	90	22	10	82.8	128	83	27	18	75.4	128	82	24	22	73.4	1385	1022	253	110	22.9				
November.....	123	91	18	14	81.3	119	90	17	12	82.8	119	84	20	15	79.0	1314	952	233	129	21.3				
December.....	121	90	22	9	83.5	124	87	28	9	81.4	125	95	21	9	84.4	1351	1021	231	99	24.1				
1907.																								
January.....	114	83	21	10	82.0	122	82	32	8	80.3	122	92	25	5	85.6	1262	916	255	91	22.7				
February.....	102	79	19	4	86.8	113	91	11	11	85.4	116	91	13	12	84.1	1131	896	156	79	26.1				
March.....	92	71	13	8	84.3	125	92	23	10	82.7	125	88	30	7	82.4	1147	855	211	81	23.7				
Totals.....	1035	793	171	71	84.9	1091	810	195	86	83.2	1096	826	181	89	83.6	11478	8837	1900	741	25.3				

NOTE.—In order to obtain the percentage of verification of the predictions, the number partly verified is divided by two and added to the number fully verified and the result divided by the total number issued.

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STORM WARNINGS.

During the nine months, July, 1906, to March, 1907, inclusive, 1,690 storm warnings were issued to the various districts in Canada where signals are displayed, and of this number, 1,534 or 90·8 per cent were verified; on 393 occasions, however, the wind did not reach, and 88 occasions, exceeded the force as indicated by the signal displayed; also 139 warnings were received late, owing to issue, and 53 on account of delays in transmission.

In connection with the warnings, the probable directions from which the gales would blow were also given, and of the 1,534 verified as to force, 1,345 or 87·6 per cent were fully, and 1,458 or 95 per cent, fully and partially verified.

Further additions have been made to the display stations in the Gulf of St. Lawrence district. The stations at Barachois de Malbaie and L'Anse au Beaufils have been completed, and in addition the following new stations have been opened: Point St. Peter, Corner of the Beach, Newport Point, L'Anse aux Gascons, Port Daniel, St. Godfrey and Bonaventure river.

The outfitting of display stations with light wicker signals has almost been completed and the substitution of electric lamps for oil is being carried out wherever possible.

I would again point out the difficulty of determining exactly to what extent mariners regard the warnings of the meteorological service. We do know that most of the vessel captains do regard them and frequently telegraph and telephone for the latest reports, but even when a captain does remain in port owing to signals he is unlikely to state that he could not have weathered the storm.

An interesting table showing wrecks and casualties between 1870 and 1905 is given in the Canada Year-book, 1905, just published. In the seventies the casualties averaged 371 per annum with a tonnage of 125,997; an annual loss of life of 261 persons and damages to the value of \$2,731,160.

In the eighties the average annual casualties were 367 with a tonnage of 152,311; lives lost, 196, and damages to the value of \$2,599,427. In the nineties the casualties averaged 214; tonnage, 73,522; lives lost, 45; damages, \$786,314.

In the last six years the casualties have averaged 186 with a tonnage of 89,181; annual loss of life, 65; and damage to property, \$499,917 or less.

These figures show a marked diminution in the loss of life and property in recent years, and I claim that this is very largely owing to the warnings of storms given by the weather services of Canada and the United States.

INSPECTION OF STATIONS

During the fiscal year (nine months) ended March 31, 1907, Mr. B. C. Webber visited 35 stations, adjusting instruments where required, and also authorizing repairs to signal apparatus, in addition to instructing agents and arranging for the erection of storm signals at several new points. At Dalhousie, Percé, Cape Cope and Grand river repairs authorized last year have been completed in a creditable manner. First-class signal structures have been erected at L'Anse au Beaufils and Port Daniel, but at Ste. Adelaide de Pabos and Bathurst no steps had been taken to erect the signal shelter previously ordered. At the latter station the signal mast has been moved to the government wharf, a more desirable location; the thermometer shelter placed in a better position, and observer coached in his duties. The stations at Gaspé, Paspébiac, St. John, N.B., Sydney, Father Point and Quebec were found to be in first-class condition. The new style anemograph was furnished Father Point and Quebec. Point Lepreaux was furnished with a new equipment. Grand Manan was in fair condition, but wind instruments were not giving the best of satisfaction. In view of the expense of refitting this station, and also that Point Lepreaux seems much better for wind results, the advisability of discontinuing Grand Manan was urged. Alterations to drum houses to admit new pattern signals were authorized at St. Andrews, Digby and Little Glace bay.

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Minor repairs were ordered at North Sydney and a refitting of the station at Yarmouth, at St. Johns, Newfoundland, recommended. A new drum house was authorized to be constructed at Louisburg. At Port Morien the signal apparatus was in first-class order, and the appointment of a reliable agent was urged. Point St. Peter, Corner of the Beach, L'Anse aux Gascons and Bonaventure river were visited to determine the advisability of opening signal display stations, and conditions justified a recommendation for the establishment of stations at these points, which has since been done. A display point was also recommended at Newport point, and the station subsequently installed.

Little River west, St. Godfrey, Paspébiac east, Rosseau LeBlanc, St. Charles de Caplau and Caplau river were also visited, but owing to lack of telegraphic facilities little shipping or proximity to existing display stations, were not approved as suitable points for the display of storm signals. St. Godfrey, however, has since been opened as a display station.

Thirty-eight points were visited by Mr. W. D. Allan. At White river a complete new wind apparatus was installed, but the entire meteorological station was destroyed by fire late in December, necessitating a second visit and an entire new outfit. The barometer was moved to a new location and is now at an elevation of 1,262 feet above mean sea level. At Port Arthur, the signal shed was in need of reconstruction which was ordered. The cable for the wind station had not been delivered and work was at a standstill. At Fort William the signal mast had been removed by the Canadian Pacific Railway to make way for new docks. A new site, about 400 yards further up the stream was offered and accepted. The storm signal agent was very remiss in his duty and a new appointment was urged.

Electric wind instruments were recommended for the station at Winnipeg.

The special bulletin reporting stations at Emerson, Morden, Cartwright, Cypress river, Carman, West Selkirk, Brandon, Pierson, Pipestone, Yorkton, Birtle, Hamiota, Virden, Broadview, Indian Head, Red Deer and Lethbridge were visited, changes in location of thermometer shelters were made at a few points, instruments compared with standard and where faulty, repaired or replaced, and observers coached in their duties. The necessity of inspecting these stations at least once in two years was evidenced by the conditions found at a few places. Agents are changed frequently and some of them have no appreciation of the need of accuracy in their reports. At one station it was found that the rain gauge had been destroyed and the depth of the rainfall was obtained by noting the depth the moisture penetrated the ground. This man has since ceased to be an agent of this service. At Minnedosa the wind instruments are becoming worn, and will soon need to be replaced. The ladder ordered some time ago has been supplied. At Qu'Appelle a new down shaft anemometer was installed, and new barometer placed in position. There has not been much change in the unsatisfactory conditions which have prevailed for some time back. A new barometer was placed in position and new wind apparatus recommended to be installed which has since been done. At Regina a new downshaft combined anemometer and vane was installed. The instruments at Swift Current were found to have been moved to a new location, the barometer being suspended in a position 3 feet lower than formerly. A new anemograph was requisitioned and the installation of telephones between observers house and telegraph office advised. At Medicine Hat also, a change in the elevation of the barometer had taken place; the instrument being suspended in a position 12 feet higher than formerly. A sunshine recorder was placed in position at this station. A sunshine recorder was placed in position at Calgary. The wind apparatus at this station will require renewing shortly. At Edmonton a sunshine recorder was installed. Wind instruments required renewing which has since been done. Battleford will require a new wind equipment as soon as the new quarters are ready. At Banff, considerable work will require to be done on the mountain line. The cable will require to be retied, and number of poles on Mountain ridge doubled, as strain in heavy wind is very great and there is danger of breaking the cable. Telephones should be supplied to

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facilitate carrying on of comparisons and adjustments of Mountain and base instruments. Minor repairs are also required to the hut on Sulphur mountain. At Kamloops the instruments had been moved to a new location. The sunshine recorder was installed. At Victoria, as at all other barometric stations, instruments were cleaned and compared with standards. Mr. Reed suggested the installation of the time service. The signal could be installed on the meteorological service deck and operated from this office.

At Vancouver the time service is much appreciated, but the gun used is of a very old pattern. A modern gun would lessen the vibration on the building and also give better service. Kingston, Belleville and Deseronto were also visited.

The bulletin service in the western provinces is very much appreciated, but a continuous extension will be necessary to keep up with the development of the country. New display stations have been opened at Carberry, Neepawa, Souris, Virden, Rosethorn, Moosejaw, Yorkton, Minnedosa, Morden and Wayburn, and additional bulletin reporting stations have been opened at Humboldt and Kamsack, Sask.

The time has come when a change of policy is necessary in dealing with the western provinces.

Decentralization of the climatological branch is necessary to promptly meet the demands caused by the influx of settlers. It is recommended that a climatological office be opened at Winnipeg, Regina and Edmonton, to handle all the climatological work of the respective provinces and to satisfy the public demand for prompt service which cannot be given from Toronto, owing to the delay caused in the mails.

Mr. W. E. Jackson transferred the signal apparatus at Port Hope to the newly appointed agent, and instructed him in his duties.

Mr. F. O'Donnell transferred the instruments at Barrie to a new observer, and instructed him as to the work required.

Mr. E. Baynes Reed inspected the stations at Duncan, Nanaimo, New Westminster, Chilliwack, Ladner, Steveston, Vancouver and North Vancouver, cleaning and adjusting instruments where necessary.

Mr. F. Napier Denison inspected the Barkerville station and adjusted the instruments, also leaving a barometer at Quesnelle to be forwarded to Fort George, B.C.

Mr. D. L. Hutchinson installed the new equipment at Point Lepreaux and also at Fredericton.

SEISMOLOGY.

The seismographs at Toronto and Victoria have been kept in operation during the nine months; 46 large and small disturbances were recorded at Toronto and 50 at Victoria. The largest of these occurred on August 17, December 23 and January 14. The disturbance of August 17 originated in Chili and was of the most destructive nature, much life and property being lost in Valparaiso. The preliminary tremors from the quake reached Toronto at 0^h 20.3^m, Greenwich mean time; large waves at 0^h 36.1^m and the maximum amplitude of the pendulum swing occurred at 0^h 49.0^m. At Victoria the times were preliminary tremors 0^h 17.6^m; large waves 0^h 25.5^m and maximum amplitude 10 mm. at 0^h 41.6^m.

The amplitude of the disturbance on December 23 was 15mm. at Victoria against 10 for the Chilian quake, but as yet there has been no report as to its origin, and it was probably submarine. The destructive Jamaica quake of January 14 was well recorded at both our stations, the swing of the pendulum being 8.1 mm. at Toronto against only 0.7 at Victoria. The preliminary tremors reached Toronto at 20^h 47.9^m and Victoria at 20^h 55.0^m. Large waves, Toronto, 20^h 52.8^m; Victoria, 20^h 53.7^m.

In order that the seismological records obtained at our stations may be used to the best advantage, it is altogether necessary that they be discussed and compared with records obtained in other parts of the world, hence prints showing all more important disturbances are sent to the central bureau of the seismological committee in England; to the international seismological commission in Strassburg and to John Hopkins University, at each of which places records from all parts of the world are tabulated and discussed by persons who devote their whole time to seismological investigation.

THE LIBRARY.

The daily, weekly, monthly and annual reports of the meteorological offices and observatories of the world have been duly received and acknowledged, but owing to the total lack of further shelf room in any part of the present building, it has not been possible to catalogue them and they have been tied in bundles and stored away. This state of affairs is most unsatisfactory, especially as those members of the staff who are engaged in meteorological studies are greatly hampered as it is now almost impossible to find reports regarding meteorological conditions existing in other parts of the world.

TIME SERVICE.

During the period extending from July 1, 1906, to the end of the fiscal year, March 31, 1907, thirty-nine observations for time were made in the meridian with the transit instrument; of these 34 were stellar and 5 solar observations. The position of the stars were as usual those given in the *Berliner Jahrbuck*.

The collimation error of the transit instrument has frequently been determined from micrometrical measurements on the collimating telescope and by reversal on stars. The excavations for the new physics building a little to the west of the transit pier seems to effect the level of the instrument during times of frost, otherwise the mounting and stability of the pier remains satisfactory.

The time exchanges with Montreal, Quebec and St. John have been carried on as usual and registered on the chronograph at Toronto. The error of the Toronto clock and of the time-pieces used by the different observers elsewhere are computed from the latest observations. Both the sidereal and mean time clocks of the Toronto observatory with their various electrical appliances have continued to work well, notwithstanding the dust which gradually sifts in from the extensive building operations going on in the immediate neighbourhood.

The following table shows the difference between the time by 'Standard Observer' and that given at the various exchanges. The sign + indicates that the time sent from the different observatories is faster than that by 'Standard Observer.' The time by 'Standard Observer' is the arithmetrical mean of the times determined at Toronto and Montreal.

1906.	Toronto.	Montreal.	Quebec.	St. John.
	Seconds.	Seconds.	Seconds.	Seconds.
July 13.....	+0·11	+0·11	—0·87	
August 17.....	+0·06	—0·06	—0·10	+0·02
" 31.....	+0·16	—0·16	—0·05	
September 21.....	—0·04	+0·04	—0·52	+0·62
October 12.....	+0·12	—0·12	—0·28	
" 26.....	—0·16	+0·16	—1·42	
November 9.....	+0·39	—0·39	—2·06	+0·18
" 30.....	—0·14	+0·14	—1·04	—0·09
December 21.....	0·00	0·00	.....	+0·02
1907.				
January 25.....	0·00		—0·59	
February 15.....	—0·03	+0·03	—0·49	+0·40
March 8.....	—0·02	+0·02	—1·02	+0·20
" 22.....	—0·22	+0·22	—0·28	—0·42

With the equatorial telescope the sun observations have been continued, maps of the sun's surface four inches in diameter being obtained on 65 days. During the period from June 30, 1906, to March 31, 1907, the sun was twice observed free from spots, viz., the 12th and 22nd of October, 1906. On the maps the position of the sun's axis and equator are drawn as well as the vertical lines through the north, south, east and west points.

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A rather large spot developed on the sun's surface July 27, becoming central on the 29th and passing around the west limb on August 5. This spot returned again considerably broken up, and by the time it passed the west limb it presented a large area of small spots. The sun from this date, August 31 to November 14, remained comparatively clear of spots. November proved a very cloudy month, preventing observations. On November 29 a rather large group north of the equator was seen. On December 18 two very large groups of moderate-sized spots were visible, one north and the smaller one south of the equator, and nearly central. The north group extended laterally, strung out across fully one-third of the visible surface of the sun. The sky continued very cloudy from December 18, 1906, to January 11, 1907. On January 29, large scattered groups extended across the sun's surface, being a little south of the equator, and on February 12 the tail of these groups was central and developed into a very large disturbed area disappearing over the west limb on February 18.

Up to March 15 numerous spots both north and south of the equator, varying in size from small to moderate, were observed, after which date to March 31 the sun remained comparatively clear of spots.

THE UNITED STATES WEATHER BUREAU.

In conclusion, I desire to place on record my entire appreciation of the very friendly and harmonious relations existing between the Canadian Meteorological Service and the United States Weather Bureau. The exchange of reports continues as heretofore, and all communications are characterized by the utmost good-will and a most evident desire for mutual co-operation.

Respectfully submitted,

R. F. STUPART.

APPENDIX A.

METEOROLOGICAL SERVICE, ST. JOHN OBSERVATORY,
ST. JOHN, N.B., August, 1907.

R. F. STUPART, F.R.S.C.,
Director Meteorological Service,
Toronto, Ont.

SIR,—I have the honour to present my report on the St. John observatory for the fiscal period ending March 31, 1907.

The chief station observations of the various meteorological elements have been made as usual and the bi-daily observations, forming part of the Canadian series upon which the weather forecasts are based, have been regularly telegraphed to the central office at Toronto. No important changes have been made in the meteorological equipment.

The weather bulletin received each week-day morning from Toronto has been issued with the least possible delay, is posted in public places, distributed through the mails and published by the evening newspapers. The synopsis, giving movement of important changes throughout the continent and prevailing weather and atmospheric conditions at the different stations adjacent to our coasts, and the forecasts for following days are of the highest importance to mariners, shippers of perishable goods and various other commercial and personal interests. Numerous telephone calls are daily received for the forecasts and other information pertaining to the weather.

In addition to our daily local report the press is frequently furnished with information, especially during the stormy season or when periods of extreme or unusual

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weather conditions prevail. Calls are frequently made by commercial houses for statistical or other information for arbitration of claims for damage or demurrage, caused by storms, frosts, &c.

The astronomical work is solely confined to sidereal observations for determination of the errors and rates of the standard clocks. The star observations, clock comparisons and time signals are registered on the chronograph. Observations for time with the Troughton and Simms meridian telescope have been made nearly every fine night, the time from the Riefler clock and the records of the observations being recorded on the Warner and Swasey chronograph by a single pen. For a complete time determination and correction of instrumental errors the meridian transit of from six to ten stars is usually observed, an equal number in each position of the axis.

The primary sidereal clock Riefler No. 94, which is mounted in the clock room and kept under constant temperature and pressure, is giving most excellent results. The rate is remarkably steady and is second to none of the published rates of the primary clocks in the great observatories. The sidereal clock No. 6752 is mounted in the basement clock room along with the Riefler, the two mean-time clocks in the office.

The daily time signal has been regularly transmitted by telegraph to nearly all parts of the maritime provinces and is the standard of time for this section of the Dominion. As heretofore special signals are frequently transmitted, both by telegraph and telephone, to mariners, chronometer raters and others.

The time balls at St. John and Halifax have been dropped each week day at 1 p.m. standard time of the 60th meridian. The outside clocks connected by wire with the observatory have been hourly synchronized throughout the year. The various electrical appliances connected with our time service have been maintained in good condition and are giving the best possible satisfaction. The electric clock in Halifax is daily synchronized by our standard transmitting clock and return signals from Halifax indicate but slight error in the daily rate of that clock.

An electrical apparatus has been devised at this observatory to repeat automatically our daily time signal through the land line to the Marconi wireless station at Camperdown, N.S., without the intervention of human relays. Thus the daily signals from the transmitting clock at St. John will be available to ships at sea, equipped with the wireless apparatus, within the wireless zone of the above station.

I have the honour to be, sir,
Your obedient servant,

D. L. HUTCHINSON,
Director, St. John Observatory.

APPENDIX B.

QUEBEC OBSERVATORY,
QUEBEC, August, 1907.

To the Director,
Meteorological Service,
Toronto.

SIR,—I have the honour to transmit my annual report for the fiscal year ending March 31, 1907.

During the past year there have been no changes at this observatory.

All the usual observations were taken regularly, and the bi-hourly temperatures were continued at the citadel.

The old barometer and anemograph were replaced by new instruments.

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The time-ball which was put in good working order before the opening of navigation, was dropped correctly during the whole season.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) ARTHUR SMITH,
Director.

MAGNETIC OBSERVATORY.

Lt. Colonel F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit the annual report of the Magnetic Observatory, Agincourt.

Absolute determinations of magnetic declination, dip and horizontal force to check the zero of the differential instruments have been made at frequent intervals. Continuous records of the declination and the horizontal component have also been obtained and several important magnetic storms have been recorded, notably that of February 9, occurring at a time of great solar disturbance.

In September, Mr. P. H. Dike, acting under instructions from Dr. L. A. Bauer, director of the branch of terrestrial magnetism of the Carnegie institution, brought instruments from the United States and made comparisons between the results obtained at Agincourt and those obtained at Cheltenham, Md. Dr. Bauer in his report says: 'These comparisons have proven that the standard instruments of the two countries agree sufficiently closely for all practical purposes. Hence, instruments used in field work in Canada as referred to either set of standards, will give results as comparable as need be for practical requirements.' A detailed account of these comparisons will appear in the transactions of the Royal Society of Canada. Mr. William Menzies, who continues in immediate charge of the observatory, reports as follows:—

'During the fiscal year ending March 31, 1907, no material changes have been made in the differential instruments placed in basement. A slight alteration in bifilar was made on October 15, to permit of a change of fifteen (15) scale divisions in base line mirror in order to increase the ordinate of trace without interfering with the then adjustment of the magnet.

'The equipment of this observatory has been added to by purchase of Magnetometer-Elliott No. 98 and Compensating Pyrheliometer No. 78.

'On August 25 discontinued photo thermographic record of temperature in basement; a three year series showing that the mean daily range was but slightly in excess of 1.5 Fahr., and also that the automatic temperature compensation attached to bifilar appears to be perfect. At present the temperature conditions are recorded by daily readings of maximum and minimum and attached bifilar thermometers.

'During the year there was a loss of forty-two (42) hours in the photographic record of bifilar and declination; twenty-two owing to stoppage in driving clock, the remainder being attributable to disarrangement in gear of thermograph cylinder. The photographic curves of horizontal force and declination have been continued throughout the year with a small percentage of loss. The ordinates of these curves have been measured at hourly intervals and at the times of the occurrence of maximum and minimum movements. The results have been tabulated, reduced to absolute values and prepared for publication.

'Absolute values of the magnetic elements have been regularly determined by observations and results compared with differential instruments.

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‘Accuracy of time intervals on the photographic curves has been assured by daily comparisons with chronometers and weekly time exchanges with Toronto.

‘All requisitions coming through the Director, for special information of correspondents, have been complied with by forwarding such information to the head office for distribution.

‘The usual meteorological observations, consisting of maximum, minimum and incidental reading of temperature record of wind velocity and direction, measurements of rainfall and registration of various phenomena have been regularly carried on. On June 1, I had to vacate the house occupied by me in Agincourt.

The general magnetic survey of the United States is progressing rapidly under the Carnegie Institution for scientific research, and it has become incumbent on Canada to make a magnetic survey of the Dominion. In view of this fact, an officer of the Meteorological Service detached for special duty has recently been employed in a magnetic survey of the western provinces, and it is proposed that the work shall be extended to all the provinces.

Respectfully submitted,

R. F. STUPART.

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APPENDIX No. 10.

SIGNAL SERVICE, CANADA.

OFFICE OF THE SUPERINTENDENT,
QUEBEC, August 15, 1907.

ANNUAL REPORT FOR 1906-07.

Reports have been received from the different signal stations in the River and Gulf of St. Lawrence, during the nine months ending March 31, 1907.

In the months of July, August, September, October, November and the first three weeks of December, this office issued two bulletins each week day, at 10.30 a.m. and 3.30 p.m., and one on Sundays, at 3.30 p.m., giving full information of the weather and of inward and outward bound vessels, as signalled when passing stations. These bulletins have been distributed to the Boards of Trade, Harbour Commissions and press of Montreal and Quebec, the Shipping Federation of Canada at Montreal, the Superintendent of the Quarantine Station at Grosse Isle, the agent of the Department of Marine and Fisheries at Quebec, the Custom-house, Immigration Department, steamship agents, pilots, tug owners, Lloyd's agents and many others. The pilots at Father Point have been supplied with full information of all inward bound vessels as signalled when passing stations east of that point. Also the quarantine doctor at Rimouski was kept informed of the progress of all inward bound mail steamers.

Bulletins were also issued during the last week in March, giving condition, location and movement of the ice in the river and gulf.

The Deputy Minister of Marine at St. John's, Newfoundland, was supplied with information of the weather, wind and location of ice by the signal agents at Anticosti, Magdalen Islands, Point Amour and Meat Cove, for the guidance of the sealing fleet, which leaves St. John's in March, each year.

The Marconi wireless telegraph stations at Fame Point, Heath Point, Whittle Rocks, Point Riche, Point Amour, Belle Isle, Cape Ray and Cape Race, furnished this office with information of all inward bound steamers equipped with wireless apparatus. This information has been included in the daily bulletins and has proved of great value. During the period covered by this report, the steamers equipped with wireless apparatus were the *Tunisian*, *Victorian* and *Virginian* of the Allan Line, the *Empress of Ireland* of the Canadian Pacific Railway's Atlantic Lines, also several Canadian government vessels.

The general working of the service has given good satisfaction, and very few complaints have been received.

Respectfully submitted,

HERBERT S. MCGREEVY,
Superintendent.

J. U. GREGORY, Esq., I.S.O.,
Agent, Department of Marine and Fisheries,
Quebec.

Year and Month.	BRITISH MEN OF WAR.			FOREIGN MEN OF WAR.			1ST CLASS STEAMERS.			2ND CLASS STEAMERS.		
	Reported.	Arrived.	Passed.	Reported.	Arrived.	Passed.	Reported.	Arrived.	Passed.	Reported.	Arrived.	Passed.
1906.												
July							52	52	1	71	71	
August.....	1	1					56	56		75	75	
September.....							52	52		72	72	9
October.....							46	46	3	44	44	
November.....							64	64	4	53	53	3
December.....							63	63		31	31	2
1907.												
January.							54	54	4	46	46	
February.....							51	51	4	23	23	
March.....							64	64	1	33	33	
April.....							62	62		48	48	
May.....	4	4					43	43	5	58	58	1
June.....							47	47	4	60	60	1
	5	5					654	654	26	614	614	26

HALIFAX, N.S.
July 9, 1907.

SESSIONAL PAPER No. 21
STATION.

AS PER RECORD FOLIOS.

SHIPS, BARQUES AND BARQUENTINES.			BRIGS AND BRIGANTINES.			SCHOONERS, 3-MASTED OR BEARING PRIVATE SIGNALS.			MONTHLY TOTALS.			Remarks.
Reported.	Arrived.	Passed.	Reported.	Arrived.	Passed.	Reported.	Arrived.	Passed.	Reported.	Arrived.	Passed.	
4	4	1	1	3	3	131	131	3	
2	2	.....			.....	5	5	.....	139	139	8
3	3	.....	1	1	.....	8	8	.....	136	136	9
.....						4	4	.....	94	94	3
.....		1	1	1	.....	4	4	.....	122	122	8
7	7	.....	1	1	.....				102	102	2
.....						5	5	.....	105	105	4
.....			1	1		1	1	.....	76	76	4
.....			1	1	.....	3	3	.....	101	101	1
2	2	.....				4	4	.....	116	116	.....
3	3	.....				9	9	.....	117	117	6
.....						6	6	.....	113	113	5
21	21	1	6	6	52	52	1,352	1,352	53	..Total vessels, 1,405.

H. WALKEM, *Lieut. R.C.R.*
S.O.S.

7-8 EDWARD VII., A. 1908

ST. JOHN, N.B., August 31, 1907.

Lt.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to inclose you herewith the annual report of the St. John signal station.

I have the honour to be, sir,
Your most obedient servant,

F. J. HARDING,
Agent.

STATEMENT of Vessels Signalled by the St. John signal station, from July 1, 1906,
to March 31, 1907.

No.	Tons.
105 steamers with a total tonnage of.. . . .	254,973
46 three-masted schooners with a total tonnage of.. . . .	13,723
2 barques with a total tonnage of.. . . .	1,050
3 barquentines with a total tonnage of.....	893
2 brigantines with a total tonnage of.....	318
<hr/>	
158.. . . .Total.. . . .	270,957

SESSIONAL PAPER No. 21

APPENDIX No. 11.

EXAMINATION OF MASTERS AND MATES.

Lt.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa, Can.

SIR,—I have the honour to submit my annual report of the work performed, in connection with the examination of masters and mates, throughout Canada, for foreign-going and local certificates. I also attach a statement of the number of certificates issued and expenditure incurred, in connection with this branch of the department, from the year 1871 to this date.

It has been necessary, owing to the increase of traffic on our waterways as well as to meet the demands from various parts, to open new offices where examinations may be held, which has been done at the following places :—North Sydney, N.S., Toronto, Ont., Collingwood, Ont., and Windsor, Ont. It is probable that, in the near future, it will be necessary to have an examiner in Port Arthur, Ont., and in Edmonton, Alta.

Formerly, there were but four ports where examinations for foreign-going certificates could be held, viz.:—Halifax, N.S., Yarmouth, N.S., St. John, N.B., and Victoria, B.C. In order to meet the present requirements, the examiners at North Sydney, N.S., Charlottetown, P.E.I., and Vancouver, B.C., have after rigid examination, been found qualified to hold examination for the above-mentioned grade of certificate. It is the intention to also appoint an examiner at Montreal, P.Q. Therefore, within the present year, examinations for foreign-going certificates, will be held at Halifax, N.S., Yarmouth, N.S., North Sydney, N.S., St. John, N.B., Charlottetown, P.E.I., Montreal, P.Q., Ottawa, Ont., Vancouver, B.C., and Victoria, B. C.

In connection with the above examination, a revised edition, in conformity with the board of trade rules and regulations, has been printed in both languages, copies of which may be had from any examiner.

Respecting the examinations for coasting, inland and minor waters' certificates, new rules and regulations have been framed and the standard of knowledge required has been increased, which have been published, in book form, in both languages, and may be had from examiners.

The examiners at St. John, N.B., Kingston, Ont., Kenora, Ont., Nelson, B.C., have tendered their resignations, which were accepted. The Vancouver and Kenora vacancies have been filled; candidates for the other ports will shortly be appointed, including that of Halifax, which has been vacant through the demise of the examiner.

Heretofore, on the satisfactory report of any examiner, certificates were issued, and each examiner was held responsible for such recommendation. As this system gave room for undue leniency in many cases, and there being no positive proof that any examinations were held, as no documents were being brought forth as evidence, the system has been altered, and every paper of problems and answers to questions given by the examiner and signed by the candidate has to be forwarded to the department, and no certificate is issued till those papers have been scrutinized and found satisfactory. This has proved to be a check against any tendency to partiality in the examination of candidates.

The great demand from all parts of the Dominion for the book which has been published relating to examinations, shows conclusively that the supervision now exercised was necessary and, without the least doubt, timely, as prospective candidates are now obliged to make themselves thoroughly acquainted with the necessary subjects pertaining to their profession before their requests to be examined can be entertained.

Owing to those modifications and changes which have been brought in the conduct

and control of those examinations, it has become necessary for me to inspect all offices and be in close and personal contact with all examiners, at least twice yearly.

The close supervision of examinations has had the effect of diminishing, to a minimum, violations of the Masters and Mates' Act. Several reports of contravention were inquired into. No prosecutions have been entered, but due warning against a repetition was given. The investigation of such reports and the examination of recommended candidates to fill vacancies, caused by the resignation of examiners, have been the cause of frequent absence from the office.

I have the honour to be, sir,
Your obedient servant,
L. A. DEMERS,
Chief Examiner.

October 11, 1907.

CERTIFICATES TO MASTERS AND MATES.

During the nine months ended March 31, 1907, 12 masters, 18 mates and 18 second mates' seagoing certificates of competency; 88 masters' and 53 mates' coasting or inland certificates of competency; and 1 master's coasting certificate of service, were issued.

The total amount collected in fees from applicants for examination during the nine months ended March 31, 1907, was \$2,294.50, and the amount expended on account of this service was \$5,934.16, an excess of expenditure over receipts of \$3,639.66.

The following statement shows the total receipts and expenditure on account of masters and mates since 1871:

	Expenditure.	Receipts.
	\$ cts.	\$ cts.
Fiscal year ended June 30, 1871.	1,410 45	
" " 1872.	4,312 07	1,344 00
" " 1873.	6,466 18	4,963 00
" " 1874.	4,520 19	2,995 00
" " 1875.	5,696 62	2,715 00
" " 1876.	4,672 08	2,021 87
" " 1877.	4,050 00	1,740 50
" " 1878.	4,249 76	1,296 50
" " 1879.	4,250 12	1,334 50
" " 1880.	4,253 43	1,547 00
" " 1881.	3,888 41	1,333 50
" " 1882.	3,965 19	1,152 50
" " 1883.	4,021 20	1,314 00
" " 1884.	3,909 59	9,437 50
" " 1885.	4,324 15	2,897 00
" " 1886.	5,245 28	2,152 00
" " 1887.	4,855 98	2,172 00
" " 1888.	5,060 96	3,220 80
" " 1889.	4,381 04	2,202 00
" " 1890.	4,117 83	2,186 00
" " 1891.	4,225 24	2,586 00
" " 1892.	4,363 88	2,194 00
" " 1893.	4,166 99	2,484 00
" " 1894.	3,721 33	2,904 04
" " 1895.	3,758 29	3,974 50
" " 1896.	4,062 92	2,307 50
" " 1897.	3,536 29	3,754 00
" " 1898.	3,335 40	4,800 00
" " 1899.	3,568 26	4,486 50
" " 1900.	3,750 69	4,221 50
" " 1901.	3,720 25	4,808 24
" " 1902.	3,305 59	5,288 52
" " 1903.	4,968 36	5,790 50
" " 1904.	7,761 17	4,795 00
" " 1905.	5,884 74	4,643 85
" " 1906.	7,068 15	5,526 00
" " 1907.	5,934 16	2,294 50
Expenditure.....	164,732 14	114,883 32
Receipts.....	114,883 32	
Excess of expenditure over receipts..	49,848 82	

APPENDIX No. 12.

GENERAL SUMMARY of Expenditure for nine months to March 31, 1907.

Service.	Amount.	Total.
	\$ cts.	\$ cts.
Ocean and River—		
Dominion steamers.....	447,139 03	
Examination of masters and mates.....	5,934 16	
Rewards for saving life, life-boats, &c.....	9,025 89	
Investigations into wrecks.....	8,662 16	
Schools for navigation.....	4,891 69	
Registration of Canadian shipping.....	1,506 53	
Removal of obstructions in navigable rivers..	7,377 20	
Tidal service.....	19,214 79	
Winter mail service.....	11,998 01	
Marine biological station.....	1,537 04	
Cattle inspection.....	2,743 80	
Wrecking plant.....	15,000 00	
Hudson's Bay expedition.....	33,871 95	
" patrol boat.....	29,977 91	
Icebreaking steamer <i>Lady Grey</i>	66,293 51	
Quebec Coal Company's claim.....	1,000 00	
Arresting two sailors of the <i>Hector</i>	148 75	
H. M. Stewart.....	171 00	
Unforeseen expenses.....	3,213 62	
		669,717 04
Lighthouse and coast—		
Salaries and allowances of lightkeepers.....	197,235 03	
Agencies, rents and contingencies.....	22,076 58	
Maintenance and repairs to lighthouses.....	499,597 86	
Construction of lighthouses and apparatus.....	1,159,906 40	
Breaking ice in Thunder bay.....	21,303 85	
Signal service.....	6,859 68	
Marconi stations.....	53,532 19	
Pilotage.....	21,490 73	
Repairs to wharfs.....	1,747 15	
Salaries, temporary clerks.....	14,477 16	
Georgian bay and Parry Sound buoys.....	4,500 43	
		2,002,727 06
Scientific institutions and hydrographic surveys—		
Observatory, Toronto.....	2,313 67	
" Kingston.....	375 00	
" Montreal.....	375 00	
Meteorological service.....	75,163 20	
Hydrographic surveys.....	48,435 32	
		162 662 19
Dredge "No. 15".....		150,000 00
<i>Cap a la Roche</i>		1,347 87
<i>Galveston</i>		50,089 77
Ship channel.....		419,398 19
Compensation to L. O'Brien.....		2,200 00
Marine hospitals.....	37,362 11	
Shipwrecked and distressed seamen.....	793 56	
		38,155 67
Steamboat inspection.....		32,459 55
Returns for Parliament.....	634 36	
K. Falconer, reorganizing system of book-keeping.....	25,000 00	
		25,634 36
Civil government, salaries.....	68,995 81	
" contingencies.....	14,182 31	
		83,178 12
Total Marine Branch.....		3,637,569 82
" Fisheries Branch.....		534,669 90
Fishing bounty.....		159,015 75
		4,313,255 47

APPENDIX No. 13.

1906-1907.

STATEMENT of Revenue of Marine and Fisheries Department for the fiscal year ended March 31, 1907.

Service.	Amount.	Refunds.	Total.
	\$ cts.	\$ cts.	\$ cts.
Harbours, piers and wharfs....	14,637 30	1,531 39	13,105 91
Dominion steamers—			
<i>Minto</i>	9,075 23		
<i>Stanley</i>	7,793 65		
<i>Champlain</i>	4,831 46		
			21,700 34
Winter mail service.....	630 59	53 57	577 02
Examination, masters and mates....			2,294 50
Fines and forfeitures.....	389 20	150 00	239 20
Steamboat inspection fund.....	1,988 64		
“ “ engineers’ certificates....	1,000 00		
			2,988 64
Sick mariners’ fund.....	44,894 81	190 22	44,704 59
Signal station.....			554 00
Decayed pilots’ fund.....			2,239 34
Pilots’ expense account.....			52 13
Pilots licenses.....			43 50
Marine register fees.....			39 67
Casual revenue, sundries—			
Marine.....	12,291 12		
Fisheries.....	6,067 10		
	18,358 22	636 82	17,721 40
			106,260 24
FISHERIES.			
Ontario.....	349 10		349 10
Quebec.....	8,145 97	2,400 00	5,745 97
Nova Scotia.....	3,118 73		3,118 73
New Brunswick.....	9,153 08		9,153 08
Prince Edward Island.....	1,300 94		1,300 94
Manitoba.....	2,285 98		2,285 98
Northwest Territories.....	358 00		358 00
British Columbia.....	29,903 95		29,903 95
Yukon.....	173 00		173 00
Franklin district.....	100 00		100 00
Hudson Bay.....	10 00		10 00
Alberta.....	2 50		2 50
Saskatchewan.....	509 00		509 00
			53,010 25
<i>Modus vivendi</i>	4,134 00		4,134 00
			163,404 49

APPENDIX No. 14.

WHARFS, Piers and Harbours, 1906-7.

Name of Wharfs.	Amounts.	Name of Wharfs.	Amounts.
<i>Ontario</i>	\$ cts.	<i>Nova Scotia—Concluded.</i>	\$ cts.
Barrys Bay.....	143 33	Bayfield.....	16 92
Blind River.....	544 22	Bear Point.....	3 18
Bruce Mines.....	84 11	Belliveau Cove.....	48 90
Echo Bay.....	124 26	Black Point.....	14 26
Fort William, harbour dues.....	79 70	Bridgewater, harbour dues.....	54 50
Goderich.....	3 65	Brooklyn.....	23 54
Hilton.....	176 97	Canada Creek.....	3 38
Honora.....	10 19	Centreville.....	95 10
Kingsville.....	105 39	Church Point.....	24 43
Leamington.....	62 08	Cranberry Head.....	3 70
L'Orignal.....	198 29	Delaps Cove.....	2 99
Midland.....	52 05	D'Escousse.....	7 16
North Bay.....	3 97	Digby.....	1,861 00
Oshawa.....	199 19	Drum Head.....	0 72
Pelee Island.....	125 76	Granville Centre.....	25 41
Pembroke.....	81 96	Halls Harbour.....	22 46
Port Arthur, harbour dues.....	141 00	Hampton.....	8 92
Port Finlay.....	84 74	Harbourville.....	11 52
Providence Bay.....	63 40	Horton Landing.....	10 34
Richards Landing.....	156 71	International pier, Sydney, harbour dues.....	108 00
Rondeau.....	23 25	Jordan Bay.....	4 96
Sheguiandah.....	85 13	Louisburg.....	55 50
Southampton.....	140 84	Margaretsville.....	61 77
Thessalon.....	130 08	Lunenburg.....	0 50
Warton.....	24 00	Meteghan Cove.....	40 45
	2,844 27	Meteghan River.....	18 85
<i>Quebec.</i>		Morden.....	4 32
Anse St. Jean.....	58 91	Oak Point (Kingsport).....	200 00
Anse aux Cascons.....	64 15	Ogilvie.....	14 12
Baie St. Paul.....	107 77	Parrsboro'.....	11 08
Beauport.....	20 00	Parkers Cove.....	44 33
Berthier.....	53 05	Picketts.....	60 33
Cap à l'Aigle.....	44 77	Port Dufferin.....	19 86
Carleton.....	1 53	Port George.....	44 48
Chicoutimi.....	494 07	Port la Tour.....	33 08
Coteau du Lac.....	8 22	Port Matoun.....	7 99
Coteau Landing.....	16 07	Port Lorne.....	37 94
Grand River.....	139 68	Port Morien.....	134 07
Isle aux Grues.....	1 51	Port Hawkesbury.....	417 68
Isle Perrot.....	29 19	Poulamond.....	25 07
Lacolle.....	17 81	Saulnierville.....	21 47
Les Eboulements.....	95 92	Shag Harbour.....	10 42
Longueuil.....	3 00	Swims Point.....	24 39
Matane.....	211 20	Tiverton.....	1 46
Magog.....	46 92	West Pubnico.....	10 08
Murray Bay.....	147 85	White Head.....	6 03
New Carlisle.....	41 00	Wolfeville.....	20 70
Paspebiac.....	12 07	Whycocomah.....	22 99
Percé.....	172 98		
Port Daniel.....	119 58	Total.....	3,876 63
Riviere du Loup.....	351 96		
St. Alphonse.....	210 30	<i>New Brunswick.</i>	
St. Irene.....	1 50	Anderson's Hollow.....	106 76
St. Jean d'Orleans.....	65 97	Black River.....	2 48
St. Johns, harbour dues.....	313 00	Buctouche.....	33 42
Ste. Cecile du Bic.....	6 75	Campbellton.....	1,047 48
St. Laurent.....	27 35	Caraguet.....	15 06
St. Nicholas.....	25 00	Cape Tormentine.....	570 66
St. Thomas de Montmagny.....	2 10	Cocagne.....	1 71
St. Zotique.....	7 88	Dalhousie.....	139 73
Sorel, harbour dues.....	124 50	Hopewell Cape.....	24 91
Tadoussac.....	81 70	Quaco.....	5 85
	3,125 26	Tracadie.....	44 79
<i>Nova Scotia.</i>		Two Rivers.....	3 00
Babin's Cove.....	8 69		
Barrington.....	167 59	Total.....	1,995 85

WHARFS, Piers and Harbours, 1906-7—Continued.

Name of Wharfs.	Amounts.	Name of Wharfs.	Amounts.
	\$ cts.		\$ cts.
<i>Prince Edward Island.</i>		<i>Prince Edward Island—Concluded.</i>	
Annandale.....	55 73	Pownal.....	25 83
Bay View.....	0 96	Sturgeon.....	26 41
Belfast.....	69 34	Tignish.....	10 34
Chapel Point.....	15 05	Vernon River.....	39 91
China Point.....	22 62	Wood Island.....	3 89
Crapaud and Victoria.....	220 70		
Charlottetown.....	262 36	Total.....	1,001 90
Georgetown.....	5 89		
Hickeys.....	32 40	<i>British Columbia.</i>	
Hurds Point.....	57 88	Comox, harbour dues.....	146 00
Kiers Shore.....	80 59	Victoria and Esquimault, harbour dues.	116 00
Lambert and Stevens.....	0 93		
Murray Harbour, North.....	9 11	Total..	262 00
North Cardigan.....	30 25		
Pinette.....	31 71		

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APPENDIX No. 15.

STATEMENT of Sick Mariners' Dues collected for the Fiscal Year ended March 31, 1907.

<i>Quebec.</i>		\$	cts.	<i>Nova Scotia—Concluded.</i>		\$	cts.
Gaspé.....		102	88	Liverpool.....		51	98
Montreal.....		3,522	02	Lockeport.....		2	64
Paspébiac.....		285	40	Lunenburg.....		479	48
Percé.....		146	66	North Sydney....		800	18
Quebec.....		3,443	34	Parrsboro.....		600	74
Rimouski.....		241	60	Pictou.....		150	76
St. Armand.....		12	16	Port Hawkesbury....		277	04
St. Johns.....		956	86	Port Hood.....		0	52
Sorel.....		36	50	Shelbourne.....		52	72
Three Rivers.....		77	88	Sydney.....		1,939	31
Total.....		8,825	30	Weymouth.....		176	60
<i>New Brunswick.</i>				Windsor.....		403	58
Bathurst.....		315	76	Yarmouth.....		449	00
Campbellton.....		163	56	Total.....		13,560	63
Chatham.....		580	30	<i>British Columbia.</i>			
Dalhousie.....		562	92	Nanaimo.....		5,032	72
Moncton.....		348	94	New Westminster....		160	28
Newcastle.....		418	72	Vancouver.....		1,447	30
Sackville.....		96	42	Victoria.....		5,732	10
St. John.....		7,429	28	Total.....		12,372	40
St. Stephen.....		83	50	<i>Prince Edward Island.</i>			
Total.....		9,999	40	Charlottetown.....		118	66
<i>Nova Scotia.</i>				Summerside.....		18	42
Amherst.....		288	56	Total.....		137	08
Annapolis.....		80	82	Total dues collected...		44,894	81
Arichat.....		7	88	Less Refunds.....		190	22
Baddeck.....		110	66	Grand total.....		44,704	59
Barrington.....		8	22				
Canso.....		106	22				
Digby.....		146	86				
Glace Bay.....		1	24				
Halifax.....		7,401	64				
Kentville.....		23	98				

APPENDIX No. 16.

STATEMENT of Steamboat Inspection Dues collected during the Fiscal Year ended March 31, 1907.

<i>Ontario.</i>		\$	cts.	<i>British Columbia.</i>		\$	cts.
Windsor...		138	40	Vancouver		109	52
				Victoria.....		155	44
Total....		138	40	Total.....		264	96
<i>Quebec.</i>				<i>Yukon Territory.</i>			
Quebec.		130	00				
Total....		130	00	Dawson.....		120	24
<i>Nova Scotia.</i>				Total.....		120	24
Halifax...		1,242	64	Total dues collected.....		1,988	64
North Sydney.		92	40	Engineers' certificates..		1,000	00
Total.....		1,335	04	Grand total.....		2,988	64

APPENDIX No. 17.

STATEMENT of Receipts from the Lighthouse and Coast Service of Canada for the
Fiscal Year ended March 31, 1907.

	\$	cts.
The Collector of Customs, Halifax, N.S., Signal Station Dues...	554	00
Total.....	554	00

APPENDIX

STATEMENT of Expendidure by the Marine Department

	1868.	1869.	1870.	1871.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Maintenance of lights—				
Above Montreal.....	40,561 28	42,306 69	46,289 05	44,054 01
Montreal District.....	23,053 56	25,762 54	21,669 49	22,453 52
Below Quebec.....	45,615 35	41,651 73	43,730 61	31,582 75
Nova Scotia.....	46,460 72	56,394 88	43,682 86	76,230 77
New Brunswick.....	20,488 00	23,893 00	27,485 14	20,542 29
Prince Edward Island.....				
British Columbia.....				
Construction—				
Above Montreal.....	3,136 15		2,976 83	8,770 55
Quebec.....	7,323 75	7,492 59	1,543 06	
Nova Scotia.....	22,041 42	6,905 80	18,967 23	10,948 31
New Brunswick.....			11,555 91	8,735 73
Prince Edward Island.....				
British Columbia.....				
Dominion steamers—				
Quebec.....	69,026 73	37,176 02	34,549 49	59,797 05
Nova Scotia.....	14,778 92	26,603 94	19,759 96	13,139 86
New Brunswick.....				
Prince Edward Island.....				
British Columbia.....				
Examination of masters and mates.....			908 12	1,407 66
Hudson Bay expedition.....				
Investigation into wrecks.....			140 00	
Marine Hospital, Quebec.....	19,977 36	19,221 45	21,618 73	19,823 18
Marine hospitals.....	1,070 86	15,615 71	15,652 62	15,728 93
Meteorological service.....	8,200 00	8,950 00	8,950 00	9,370 82
Registration of Canadian shipping.....				
Removal of obstructions.....			2,350 07	1,000 00
Rewards for saving life.....				
Signal service.....				
Steamboat inspection.....	7,106 93	7,999 00	7,396 96	8,321 00
Survey, Georgian Bay.....				
Water Police, Montreal.....	27,445 35	10,238 71	9,323 31	8,030 00
" Quebec.....		12,633 59	9,038 62	9,379 73
Civil Government.....	15,083 88	18,064 25	19,401 05	20,220 96
Steam communication—				
Between Quebec and Maritime Provinces.....				
Between Prince Edward Island and mainland.....				
Purchase of steamers to replace—				
<i>Glendon</i>				
<i>Lady Head</i>				
Winter mail service, Prince Edward Island.....				
Tidal observations.....				
Gratuities.....				
Survey, Burrard Inlet.....				
Export cattle trade.....				
	371,070 56	360,899 90	36,212 91	389,537 12

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No. 18.

from Confederation to March 31, 1907.

1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
57,609 16	61,036 47	60,798 75	71,937 18	68,344 18	65,421 00	73,175 11	74,587 78	65,518 61
22,369 00	31,143 14	20,939 13	15,000 00	12,999 48	15,998 00	15,996 00	14,917 95	16,523 88
41,936 00	65,645 00	102,056 09	110,362 00	98,792 93	89,980 41	96,904 00	93,178 61	96,703 87
67,806 24	100,953 80	114,711 91	114,344 51	143,125 56	128,496 00	132,888 95	120,951 33	116,189 60
23,369 12	29,266 85	53,439 04	60,119 02	62,551 61	50,998 00	58,989 00	57,499 02	61,252 82
.....		3,357 71	12,584 64	13,730 53	11,817 00	16,986 66	12,158 72	15,288 17
.....	13,207 09	18,519 50	15,983 72	17,175 97	15,853 00	18,948 78	15,152 73	15,576 99
6,940 45	18,999 38	24,461 86	14,286 65	13,320 40	16,267 98	7,207 96	11,993 75	13,297 81
57,818 35	39,303 87	41,950 82	19,325 00	24,336 47	12,945 29	12,776 47	4,154 58	7,797 75
34,760 12	90,181 79	51,867 94	43,898 63	42,214 55	25,550 00	13,500 00	17,386 97	7,069 01
9,561 14	16,691 06	31,572 60	8,842 97	17,819 85	7,083 82	12,028 13	22,598 14	4,985 53
.....				11,829 61	17,752 00	2,504 47	2,560 88	6,074 50
.....		4,353 93	8,799 07	8,477 67	29 66			
47,500 00	51,758 05	64,490 00	79,043 70	62,971 49	49,987 66	42,683 00	44,972 79	49,318 93
20,999 63	24,999 57	30,008 99	22,992 62	133,826 08	38,739 39	43,027 00	42,016 53	49,438 93
.....				16,241 26	61,782 63	28,933 63	16,332 05	14,429 52
12,115 96	15,984 72	10,555 67	41,796 74	10,156 56	16,095 90	12,193 40	7,460 68	9,733 34
4,312 07	6,466 18	4,520 19	5,696 62	4,672 08	4,050 00	4,249 76	4,250 12	4,253 43
874 00	1,068 89	2,313 31	366 00	466 41	342 65	500 00	1,691 00	676 73
21,000 00	21,000 00	20,456 45	21 994 75	23,795 85	19,965 97	19,987 50	20,791 77	12,991 23
53,536 16	27,150 43	45,986 87	37,111 67	37,155 72	42,449 55	37,487 10	37,445 57	35,040 00
12,618 15	18,830 54	36,700 59	33,580 00	45,560 03	44,871 38	46,050 24	45,706 13	45,554 51
.....		272 30	1,096 46	412 06	842 14	1,435 10	239 26	257 75
.....			450 00		203 00	462 00	305 86	825 00
2,284 32	1,975 13	4,931 78	3,552 86	2,292 20	1,958 55	4,071 00	2,533 10	2,263 15
.....		1,000 00						
8,500 00	13,266 00	10,291 58	12,200 00	13,081 86	13,073 01	13,228 38	13,076 46	11,854 34
10,000 00	14,453 87	12,370 86	13,395 00	14,090 00	13,524 29	14,062 00	13,462 74	13,131 06
10,348 00	18,200 00	26,526 66	24,500 00	27,136 68	21,482 08	23,498 06	23,023 26	22,094 48
22,644 52	25,336 04	30,087 23	31,328 16	32,789 18	32,304 12	32,682 05	36,610 19	35,083 95
.....		15,000 00	10,000 00	10,000 00				
.....				750 00				
.....								
.....								
.....								
.....								
.....								
.....								
518,958 49	706,817 92	845 150 90	844,586 09	970,146 27	820,054 38	786,156 23	755,359 47	723,360 89

STATEMENT of Expenditure by the Marine Department

	1881.	1882.	1883.
	\$ cts.	\$ cts.	\$ cts.
Maintenance of lights—			
Above Montreal.....	65,541 21	71,048 50	70,116 68
Montreal District.....	14,326 36	21,643 05	22,260 32
Below Quebec.....	89,781 29	91,098 66	102,784 99
Nova Scotia.....	128,918 59	137,846 15	150,793 17
New Brunswick.....	63,921 90	66,073 00	75,946 92
Prince Edward Island.....	12,997 36	16,985 72	17,907 27
British Columbia.....	17,570 72	17,803 00	18,349 06
Cape Race.....			
Construction—			
Above Montreal.....	14,180 02	13,581 00	9,782 27
Quebec.....	7,539 76	3,731 31	9,672 55
Nova Scotia.....	7,757 52	13,355 00	9,422 70
New Brunswick.....	4,578 52	2,253 80	1,022 57
Prince Edward Island.....	8,150 06	3,092 00	1,934 49
British Columbia.....	8,655 39	3,237 90	1,005 26
Queen's Printer.....			
Dominion steamers—			
Quebec.....	64,973 00	44,923 98	45,156 13
Nova Scotia.....	36,700 00	31,049 74	37,841 07
New Brunswick.....			
Prince Edward Island.....	15,139 95	23,911 97	19,680 00
British Columbia.....	11,788 09	8,504 61	25,484 00
Department.....			
Examination of masters and mates.....	3,888 41	3,981 00	4,021 20
Hudson's Bay expedition.....			
Investigation into wrecks.....	310 48	863 19	875 64
Marine Hospital, Quebec.....	19,964 33	19,938 12	19,998 53
Marine hospitals.....	32,218 94	33,162 45	29,880 78
Meteorological service.....	46,163 54	47,464 07	51,990 25
Registration of Canadian shipping.....	607 43	2,013 28	168 84
Removal of obstruction.....	150 00	1,116 51	35 80
Rewards for saving life.....	1,806 13	2,212 00	2,534 60
Signal service.....			3,365 33
Steamboat inspection.....	12,211 65	14,835 00	16,209 00
Hydrographic surveys.....			77 81
Water Police, Montreal.....	21,953 26	21,994 74	15,798 24
Water Police, Quebec.....	13,497 81	20,221 82	22,520 41
Civil Government.....	36,447 50	36,789 46	37,988 39
Steam communication—			
Between Quebec and Maritime Provinces.....			
Between Prince Edward Island and mainland....			
Repairs to wharfs.....			
Purchase of steamers to replace—			
Stanley.....			399 55
Glendon.....			
Lady Head.....			
Winter mail service, Prince Edward Island.....			
Tidal observations.....			
Gratuities.....			
Survey, Burrard Inlet.....			
Export cattle trade.....			
Survey, Bay of Quinté.....			
Relief of distressed Canadians.....			
Manning ships.....			
Widow of late A. Warren.....			
McDonald Bros.....			
Parliamentary returns.....			
Investigating effect of Chicago drainage canal.....			
John McDonald.....			
Longitude, Montreal.....			
Marine biological station.....			
	761,730 62	774,831 53	825,010 82

SESSIONAL PAPER No. 21

from Confederation to March 31, 1907—*Continued.*

1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
\$ sts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
70,788 27	70,697 89	85,713 98	75,690 74	85,588 70	72,721 23	84,035 65	93,180 72
22,946 43	23,262 94	33,289 28	16,735 49	17,510 17	12,285 79	118,750 70	122,471 89
101,302 35	118,856 94	131,095 29	131,540 80	108,278 67	112,690 20	139,459 56	139,916 83
142,909 72	137,439 40	143,153 24	117,708 53	133,009 92	140,197 15		61,089 31
86,670 70	92,130 28	76,046 63	96,425 28	73,465 49	78,285 79		61,089 31
19,059 62	20,218 83	22,282 52	17,852 13	14,796 62	19,118 51		19,000 46
18,107 54	15,497 76	14,783 75	16,230 43	19,604 63	16,877 12	16,411 49	19,595 22
			4,453 25	5,124 20	7,358 01		
18,432 65	27,977 42	36,678 16	18,383 20	6,341 97	8,623 76	23,863 09	9,796 28
3,168 48	4,354 87	5,877 84	1,260 00	2,287 86	12,203 06		3,723 14
12,489 35	4,352 42	5,905 17	5,330 89	5,533 48	6,039 91		4,596 94
2,868 70	7,667 42	2,421 66	5,280 75	1,542 61	2,966 36		208 16
2,158 60	879 40		384 60				410 00
2,830 38	5,223 11	4,942 70	321 84	5,918 00	1,890 00		14,417 25
			26 58		40 14		
43,019 13	51,092 98	51,485 03	50,714 52	150,659 19	126,629 33	114,956 20	111,437 03
27,726 60	42,921 27	30,283 27	32,287 10				
		24,633 26	14,337 23				
19,539 52	33,962 54	20,927 58	19,987 67				
16,111 83	12,485 07	13,430 69	10,809 07				
			13,288 83				
5,580 79	6,656 44	5,239 28	4,858 98	5,063 96	4,381 04	4,177 83	4,255 24
480 69	71,374 69	35,217 10	14,762 61	165 00			
830 12	385 15	592 63	520 14	513 91	516 67	888 94	1,172 77
19,990 34	19,996 68	16,047 95	19,706 96	18,777 62	18,643 14	10,279 08	751 75
31,401 30	45,371 29	32,229 02	32,545 35	30,667 67	33,089 20	31,450 03	33,303 37
56,418 16	56,625 40	56,898 33	57,140 74	59,986 10	58,577 07	58,452 10	62,457 10
189 27	237 88	157 13	233 13	897 02	179 21	647 52	1,207 07
342 76	2,259 21	1,237 34	4,190 83	2,500 94	3,603 65	5,737 26	3,633 65
2,614 91	5,221 15	8,147 22	7,363 94	6,825 48	5,503 44	8,150 92	4,952 20
6,704 17	3,881 05	4,622 00	5,082 17	4,441 59	5,092 54	4,976 80	4,700 79
21,893 28	23,235 04	21,775 57	22,847 57	21,430 45	22,213 03	20,989 52	22,183 76
26,745 54	20,454 68	17,759 36	21,592 55	19,424 14	17,808 46	17,969 23	17,677 51
19,021 93	17,683 59	20,933 75	17,413 47	18,725 95	16,948 82	13,164 00	573 80
22,958 79	20,399 33	22,922 82	22,935 65	18,553 57	14,698 68	8,620 61	7,279 85
38,775 00	29,900 83	30,453 57	37,193 62	32,728 78	43,501 96	42,835 78	42,253 67
					143,505 60		
56,164 71	47,238 03						
		5,985 42	6,312 93				
				7,740 25	1,842 47	2,752 67	7,012 70
						244 75	1,888 71
					200 00	80 00	1,025 00
							1,690 12
							520 85

STATEMENT of Expenditure by the Marine Department

	1892.	1893.	1894.	1895.	1896.	1897.	1898.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Maintenance of lights—							
Above Montreal.....	87,033 61	87,598 15	78,090 69	82,541 16	82,256 28	80,961 06	87,841 22
Montreal District.....							
Below Quebec.....	116,531 27	120,404 19	124,348 80	124,763 81	124,143 66	126,186 00	116,279 88
Nova Scotia.....	148,815 26	150,445 26	137,339 73	140,977 53	123,234 65	124,671 19	126,386 00
New Brunswick.....	66,886 69	71,079 46	59,917 96	69,654 46	63,018 64	56,771 02	67,369 98
Prince Edward Island..	17,069 98	16,819 64	15,569 39	17,976 67	17,988 15	16,429 23	18,112 93
British Columbia.....	26,858 68	24,413 27	27,240 77	21,734 18	24,770 44	25,679 52	26,862 03
General account.....							
Construction—							
Above Montreal.....	21,704 05	8,766 62	12,581 15	2,699 40	11,993 84	9,527 94	6,867 69
Quebec.....	809 27	10,097 18	4,743 13	3,004 14	3,300 30	296 26	3,649 90
Nova Scotia.....	1,965 16	4,381 24	3,104 77	4,737 03	1,842 94	61 71	4,067 99
New Brunswick.....	1,845 35	1,271 15	115 45	1,597 80	200 00	1 60	1,423 34
Prince Edward Island..	1 56	2,958 61	1,604 00			452 90	1,409 60
British Columbia.....	9,478 81		6,356 43	180 83	225 50	569 99	6,414 19
Lake St. Peter.....							
New dredge.....							
Dominion steamers—							
Quebec.....							
Nova Scotia.....							
New Brunswick.....	145,899 61	163,097 46	178,183 97	169,661 64	145,315 28	136,940 11	117,644 39
Prince Edward Island..							
British Columbia.....							
Naval schools.....							
Examinations of masters & mates.....	6,363 88	4,116 99	3,745 33	2,757 29	4,062 82	3,536 29	3,335 40
Hudson's Bay expedition...						19,091 32	27,050 66
Investigation into wrecks...	603 21	643 49	850 81	351 15	483 98	565 25	312 77
Lighthouse depot, Georgian Bay.....							
Marine hospitals.....	34,106 83	35,757 07	38,403 94	38,589 05	36,682 96	37,984 71	38,162 56
Meteoroloigcal service.....	67,138 06	64,165 60	66,440 96	64,588 34	66,600 29	67,397 71	64,135 71
Registration of Can.shipping	462 59	1,476 19	394 00	207 40	517 60	531 55	818 33
Removal of obstructions....	2,878 68	1,554 53	202 02	2,217 36	456 38	631 86	704 17
Rewards for saving life.....	6,398 93	7,432 64	8,014 67	6,591 34	8,004 38	5,955 19	5,081 40
Signal service.....	5,014 42	5,040 58	4,668 93	5,311 54	5,338 76	5,986 12	4,993 88
Steamboat inspection.....	22,736 59	24,386 95	25,961 36	26,385 88	26,321 27	26,837 83	26,342 29
Hydrographic surveys.....	16,451 10	17,542 11	31,461 76	12,653 28	15,099 63	12,352 99	15,306 66
Ship channel.....	6,161 60	5,436 23					
Civil Government.....	43,195 31	56,477 23	54,988 88	71,373 82		74,801 37	74,644 05
Repairs to wharfs.....		84 90	1,007 67	824 38	2,644 69	1,795 56	1,618 97
Purchase of steamer <i>Minto</i> ..							
Winter mail service, P.E.I..	3,309 44	4,376 96	6,497 03	6,138 18	7,779 69	21,931 05	9,575 31
Total observations.....	711 59	5,099 17	10,172 61	11,507 24	9,627 45	13,166 20	3,081 45
Gratuities.....			3,261 32				
Survey, Burrard Inlet.....	2,580 45						
Export cattle trade.....	1,411 57	1711 73	1,350 83	2,268 74	2,887 24		2,499 80
Survey, Bay of Quinté.....		2,085 45					
Relief of distressed Canad'ns				7 30			
Parliamentary returns.....					291 08		
Investigation effect Chicago drain canal.....							
John Macdonald.....					2,500 00		
Unforeseen expenses.....					200 00		
Marine biological station....							
New life-saving station, Long Point.....							
Salaries, temporary clerks..							
Steamer to replace <i>Bayfield</i> ..							
Observatory, Sulphur Mtn..							
Charles Morrison.....							
Montreal Pilotage Commrs..							
" wireless telegraphy							
Purchase land for wharf at Halifax, N.S.....							
Purchase land for wharf at Charlottetown, P.E.I.....							
Schools for navigation.....							
Naval militia.....							
Cattle inspection.....							
Wrecking plant.....							
Ice-breaking steamers.....							
S. Shaw.....							
Salaries, lightkeepers.....							
Agencies, rents, &c.....							
Maintenance and repairs....							
Repairs to lightships.....							
Construction and apparatus.							

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from Confederation to March 31, 1907—Continued.

1899.	1900.	1901.	1903.	1903.	1904.	1905.	1906.	1907.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
92,751 23	82,810 92	93,708 16	92,195 52	117,896 37	154,194 26	244,960 38		
136,134 79	122,112 42	132,147 88	154,839 06	148,302 34	170,554 10	273,865 74		
65,072 35	122,414 86	142,359 01	149,572 14	142,725 69	164,339 92	204,157 27		
128,674 15	52,491 93	65,247 80	69,133 51	73,410 65	79,464 50	121,289 44		
20,569 81	42,878 40	28,031 85	24,223 73	25,575 33	25,603 09	36,760 32		
29,530 20	33,545 95	31,938 25	35,119 03	35,758 43	39,068 34	55,976 59		
			46 75					
3,729 62	7,094 64	12,499 99						
37,838 80	40,319 03	17,060 13						
3,123 16	4,884 22	12,832 69	158,714 09	399,487 73	540,675 07	1,447,202 77		
91 49		266 34						
616 96	5,586 91	922 00						
19,305 60		4,160 74						
		660 03				93,938 90		
						10,745 36		
145,270 75	180,430 65	195,484 75	452,526 92	369,813 97	306,171 01	476,907 20	587,885 89	
					6,106 54	3,123 24		
3,568 26	3,750 69	3730 25	3,305 59	4,968 36	7,761 17	5,884 74	7,068 15	
982 17	773 06	1,022 65	1,824 55	1,367 45	178,638 94	236,469 12	132,707 52	
					3,570 28	5,111 34	7,476 07	
						12,000 00		
37,353 29	37,743 30	36,008 75	51,827 13	48,750 15	50,301 78	51,731 56	50,120 42	
73,148 05	76,692 42	74,082 70	80,147 46	87,293 00	90,306 99	98,820 21	99,719 52	
966 48	266 43	546 62	607 23	417 25	1,203 56	1,215 14	1,800 00	
745 49	252 19	1,000 00	1,325 25	682 98	752 60	9,521 68	4,967 15	
7,049 09	7,007 97	8,519 92	8,278 55	9,306 25	11,763 12	9,592 91	11,991 43	
6,067 90	5,906 83	8,950 17	6,452 56	6,863 75	7,740 01	8,755 44	8,184 39	
28,035 49	72,965 72	29,247 59	27,493 80	30,172 09	33,723 12	50,187 75	37,590 22	
13,664 97	12,600 98	16,170 20	25,488 64	35,243 97	41,366 95	103,926 98	120,349 69	
						511,171 41	587,957 51	
72,833 97	63,331 61	68,776 95	70,246 32	84,442 53	91,985 07	102,735 31		
	697 87	1,261 06	2,824 28	1,721 91	1,300 89	1,590 61	2,960 47	
144,365 26	41,951 88							
8,439 70	1,503 70	2,093 93	8,835 86	6,211 28	8,912 57	10,984 74	16,680 58	
5,186 35	4,372 18	7,060 20	8,925 33	14,520 00	21,871 71	23,802 24	28,047 77	
			136 85	1,050 00	1,210 00	2,340 00		
2,737 85	2,762 24	2,746 84	3,321 23	3,026 25	3,504 43	3,300 35		
		133 32		95 10		269 20		
		1,659 14						
	3,452 21	2,630 62	3,490 29	4,822 78	3,977 63	2,953 19	3,765 17	
5,709 10	739 61	1,990 58	1,998 85	2,000 00	2,996 54	2,001 69	2,914 03	
			1,780 52					
			2,967 35	6,945 96	11,448 10	15,881 35	19,947 01	
			50,000 00					
			55 00	3,167 62				
			223 00					
			3,691 69					
				1,745 23	2,050 00	10,776 51		
				3,528 25	18,847 31	40,785 11	88,033 87	
					15,119 11			
					13,000 00			
							5,036 29	
							9,135 87	
							3,335 52	
							25,000 00	
							164,414 93	
							39 33	
							242,403 64	
							29,739 50	
							531,920 43	
							23,560 00	
							1,605,778 59	

STATEMENT of Expenditure by the Marine Department

	1892.	1893.	1894.	1895.	1896.	1897.	1898.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Submarine signal apparatus.							
Administration of pilotage..							
Parry Sound Buoy Depot..							
Compensation <i>re</i> explosion							
of gas buoys.....							
Water system, Partridge Id.							
Observatory, Toronto.....							
" Montreal....							
Hydrogr. str., <i>Atlantic coast.</i>							
" <i>Pacific coast.</i> ..							
New dredge, No. 15.....							
" <i>Galveston</i>							
Shipwrecked and distressed							
seamen.....							
Parliamentary returns.....							
Gratuities.....							
Civil Government, salaries..							
" conting:..							

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from Confederation to March 31, 1907—Continued.

1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
							50,547 60	
							12,066 42	
							11,711 17	
							38,686 49	
							2,957 37	
							2,872 96	
							500 00	
							45,500 00	
							370 01	
							150,001 32	
							159,847 89	
							598 91	
							485 11	
							616 66	
							88,453 31	
							19,506 45	
							5,065,252 66	

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STATEMENT of Expenditure by Marine Department from Confederation to March 31, 1907—*Concluded.*

EXPENDITURE for the Nine Months to March 31, 1907.

Service.	Amount.	Total.
	\$ cts.	\$ cts.
Ocean and river—		
Dominion steamers.....	447,139 03	
Examination of masters and mates.....	5,934 16	
Rewards for saving life—life-boats, &c.....	9,025 89	
Investigations into wrecks.....	8,662 16	
Schools for navigation.....	4,891 69	
Registration of Canadian shipping.....	1,506 53	
Removal of obstructions in navigable waters.....	7,377 20	
Tidal service.....	19,214 79	
Winter mail service.....	11,998 01	
Marine biological stations.....	1,537 04	
Cattle inspection.....	2,743 80	
Wrecking plant.....	15,000 00	
Hudson's Bay expedition.....	33,871 95	
“ patrol boat.....	29,977 91	
Ice-breaking steamer <i>Lady Grey</i>	66,293 51	
Quebec Coal Company's claim.....	1,000 00	
Arresting two sailors of the <i>Hector</i>	148 75	
H. M. Stewart, clothing destroyed by fire.....	171 00	
Unforeseen expenses.....	3,213 62	669,717 04
Lighthouse and coast—		
Salaries and allowances of lightkeepers.....	197,235 03	
Agencies, rents and contingencies.....	22,076 58	
Maintenance and repairs to lighthouses.....	499,597 86	
Construction of lighthouses and apparatus.....	1,159,906 40	
Breaking ice in Thunder Bay.....	21,303 85	
Signal service.....	6,859 68	
Marconi stations.....	53,532 19	
Pilotage.....	21,490 73	
Repairs to wharfs.....	1,747 15	
Salaries, temporary clerks.....	14,477 16	
Georgian Bay and Parry Sound buoys.....	4,500 43	2,002,727 06
Scientific institutions and hydrographic surveys—		
Observatory, Toronto.....	2,313 67	
“ Kingston.....	375 00	
“ Montreal.....	375 00	
Meteorological service.....	75,163 20	
Hydrographic surveys.....	84,435 32	
Dredge No. 15.....		162,662 19
Cap à la Roche.....		150,000 00
<i>Galveston</i>		1,347 87
Ship channel.....		50,089 77
Compensation to L. O'Brien.....		419,398 19
Marine hospitals.....	37,362 11	2,200 00
Shipwrecked and distressed seamen.....	793 56	
Steamboat inspection.....		38,155 67
Returns for Parliament.....	634 36	32,459 55
K. Falconer, reorganizing system of bookkeeping.....	25,000 00	
Civil Government, Salaries.....	68,995 81	25,634 36
“ Contingencies.....	14,182 31	83,178 12
Total, Marine Branch.....		3,637,569 82
“ Fisheries Branch.....		534,669 90
Fishing bounty.....		159,015 75
		4,331,255 47

APPENDIX No. 19.

RECORD of Live Stock Shipped from Port of Montreal for the Fiscal Year 1906-7.

No.	Date.	Sheep.	Cattle.	Horses.	Hay for Feed.	Grain for Feed.	Number of Men.
					Lbs.	Lbs.	
162	July 1, 1906, to November 30, 1906.....	6,902	92,655	603	28,340,160	4,466,200	3,683
55	May 1, 1907, to June 30, 1907.....	2,067	27,684	58	7,403,700	2,382,370	1,088
217	Total for year ending June 30.....	8,969	120,339	661	35,743,860	6,848,570	4,771

	Sheep.	Cattle.	Horses.
Total for the year 1905-06.....	19,077	126,871	568
" 1904-05.....	49,422	108,553	279
" 1903-04.....	57,741	133,594	361
" 1902-03.....	44,330	101,508	456
" 1901-02.....	46,350	71,639	1,089

H. DELORME,
JAS. O'GRADY,
Inspectors.

SHIPMENT OF LIVE STOCK.

The number of cattle shipped from this port during the season of 1906-7 was as follows:—

Months.	SHEEP.		CATTLE.		Horses. Shipped.	Hay.	Grain.	Men.
	Shipped.	Lost.	Shipped.	Lost.				
1906.						Lbs.	Lbs.	
July.....			600			168,215		22
December....	760	20	7,196	17	27	2,110,500	437,490	285
1907.								
January.....	377	1	6,387	17	17	1,865,700	503,020	241
February...	234	4	5,446	13		1,651,190	469,800	209
March.....			5,157	8	15	1,437,350	435,300	182
April....			5,641	19		1,614,550	473,600	211
May....			781	3		234,600	62,500	33
	1,371	25	31,208	77	59	9,082,105	2,381,710	1,183

Certificate No. 18 shows 486, where 408 were sent, a difference of 68.

7-8 EDWARD VII., A. 1908

Messrs. Wm. Thomson & Son report, under date of May 6, that SS. *Manchester Shipper*, January 30, had 3 cattle lost where 5 were reported, a difference of 2. This makes the corrected shipments as follows:—

Months.	SHEEP.		CATTLE.		Horses Shipped.	Hay.	Grain.	Men.
	Shipped.	Lost.	Shipped.	Lost.				
.....	1,371	25	31,140	75	59	Lbs. 9,082,105	Lbs. 2,381,710	1,183

HALIFAX, N.S., October 15, 1907.

Lieut.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to report that no live stock was shipped from this port during the winter of 1906-7.

I have the honour to be, sir,
Your obedient servant,
NEIL HALL,
Port Warden.

APPENDIX No. 20.

STATEMENT giving Names and Stations of Light-keepers, &c., in the Dominion.

ABOVE MONTREAL.

Name.	Station.	Appointed.	Salary.	
			\$	cts.
Armstrong, John.....	Kaministikwia River.....	April 28, 1894..	300	00
Alexander, Andrew.....	Lamb Island.....	" 26, 1897..	500	00
Armstrong, Robt.....	Richards Landing.....	June 23, 1904..	40	00
Barnes, Isaac.....	Gravenhurst.....	Mar. 20, 1906..	100	00
Baechler, F.....	South River.....	July 2, 1903..	80	00
Baker, Henry F.....	Clapperton Island.....	Dec. 2, 1895..	350	00
Beauchamp, Moise.....	Way Shoal.....	Nov. 29, 1906..	100	00
Boyd, Robert P.....	Cole Shoal.....	April, 9, 1884..	250	00
Boyd, Wm. S.....	Griffith Island.....	May 14, 1889..	400	00
Butler, Silas L.....	Port Dover.....	July, 15, 1897..	300	00
Baxter, Wm. L.....	Brebœuf Range.....	Nov. 23, 1885..	400	00
Boucher, Antoine.....	Caribou Island.....	May 3, 1907..	1,000	00
Boucher, Francois.....	Aylmer Island.....	Nov. 17, 1882..	175	00
Bamford, Robert.....	Bamford Island.....	June 21, 1888..	250	00
Bertrand, Félix.....	Coulonge Lake.....	April 2, 1892..	100	00
Boyd, Wm. M.....	Kagawong.....	" 13, 1893..	72	00
Boyter, A. B.....	Narrow Island.....	Jan. 3, 1898..	250	00
Boyter, David.....	Little Current lights.....	April 22, 1902..	350	00
Brown, James.....	Southampton Harbour.....	June 29, 1904..	150	00
Ball, J. H.....	Mississagi Strait, Light and Fog Alarm.....	May 7, 1900..	750	00
Black, W. H.....	Kingsville Range.....	July 27, 1902..	150	00
Borron, Mrs. E. B.....	French river Range.....	Jan. 30, 1903..	500	00
Burmister, John F.....	Nottawasaga Island.....	May 2, 1904..	500	00
Brophy, J. J.....	BroTn or Knapp Point.....	" 9, 1905..	180	00
Claude, Benj.....	Dorval.....	Sept. 7, 1872..	300	00
Collins, Allen.....	Christian Island.....	Mar. 25, 1891..	*425	00
Cross, Manly R.....	Gananoque Narrows and Jack Straw Shoal Light.....	Aug. 25, 1896..	550	00
Campbell, Robert.....	Goderich.....	June 9, 1886..	400	00
Craig, Wm.....	Thunder Cape Light and Fog Alarm.....	May 17, 1892..	700	00
Cook, Sheldon B.....	Long Point Light and Fog Alarm.....	June 9, 1897..	700	00
Campbell, John.....	McTavish Point.....	Nov. 18, 1896..	100	00
Cartier, H. J.....	Thames River.....	Oct. 19, 1884..	425	00
Cooper, John.....	Port Arthur.....	" 14, 1882..	†300	00
Cosgrove, George.....	Victoria Island, Lake Superior.....	Nov. 14, 1889..	350	00
Columbus, Christopher.....	Penetanguishene and Whisky Island.....	Mar. 18, 1893..	400	00
Conover, Forrest H. C.....	Leamington.....	April 24, 1883..	150	00
Cox, John.....	Morrison or Hawley Island.....	June 22, 1887..	100	00
Chabot, Joseph.....	Papineauville Range.....	" 17, 1897..	100	00
Connors, Frank.....	Point Pleasant.....	Oct. 13, 1898..	300	00
Chase, H. J.....	Weller Bay.....	Nov. 4, 1898..	150	00
Casgrain, Mrs. Kate.....	Glengarry or Stonehouse Point.....	May 29, 1903..	50	00
Currie, Archibald.....	Tobermory.....	Oct. 12, 1903..	250	00
Cowan, Thos. M.....	Stag Island Shoal.....	Nov. 3, 1903..	150	00
Chapman, Richard.....	Cape Croker Light and Fog Alarm.....	" 13, 1902..	1,050	00
Clark, jr. H.....	Port Colborne Breakwater, Light and Fog Alarm.....	May 30, 1904..	600	00
Cross, J. W.....	Silver Islet Range.....	May 18, 1905..	100	00
Casgrain, René.....	Caretaker, Cornwall lights.....	April 1, 1906..	300	00
Davieau, Joseph.....	Corbay Point.....	May 27, 1890..	350	00
Davieau, Hyacinthe.....	Michipicoten Island.....	July 1, 1881..	400	00
Daoust, Dosithée.....	McKie Point.....	Sept. 21, 1893..	175	00
Davis, John H.....	Pigeon Island.....	May 16, 1896..	350	00
Dick, Andrew.....	Porphyry Point.....	Aug. 10, 1880..	450	00
Dutcher, Samuel.....	Meaford.....	May 7, 1877..	200	00
Darling, Thomas.....	Southeast Bay.....	Jan. 31, 1891..	60	00
Dixon, Joseph G.....	Rosseau.....	July 21, 1890..	100	00
Deault, Alphonse.....	Beauharnois Lights.....	April 14, 1903..	*200	00
Dulmage, Dorland.....	Outer Drake or False Ducks Light and Fog Alarm.....	May 19, 1903..	700	00
Duncan, H. G.....	Wilson Channel Range.....	1905..	350	00

* Allowance of \$10 per annum for boat.
† Allowance of \$100 per annum, looking after lighted buoys in vicinity.

7-8 EDWARD VII., A. 1908

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

ABOVE MONTREAL—Continued.

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Ead, Mrs. C.....	Port Stanley.....	May	15, 1890..	300	00
Felan, Maurice.....	Oakville.....	April	28, 1894..	150	00
Fortier, David H. A.....	Port Colborne Range Lights and Fog Alarm....	"	11, 1865..	550	00
Fellowes, W. R.....	Rondeau Harbour.....	Dec.	18, 1888..	†350	00
Filiatreault, Thomas.....	Coteau Landing.....	May	27, 1890..	140	00
Fieldsted, T.....	Gull Harbour, Lake Winnipeg.....	"	6, 1904..	150	00
Fitzpatrick, —.....	Trenton Harbour Range.....	Jan.	27, 1906..	125	00
Gloude, Benj.....	Point Claire.....	Aug.	1, 1907..	100	00
Gloude, Benjamin.....	Dorval.....	Sept.	7, 1872..	300	00
Gillespie, Wm.....	Wolfe Island.....	Mar.	16, 1885..	250	00
Gordon, Robert.....	Cobourg.....	May	16, 1883..	180	00
Grant, Mrs. James.....	Port Maitland.....	June	29, 1907..	300	00
Griffith, Alfred H.....	Giant Tomb.....	Sept.	17, 1898..	250	00
Gourley, jr., John.....	Manitowaning.....	July	3, 1900..	150	00
Gilbert, Philip.....	Warton Pole Light.....	Sept.	5, 1902..	75	00
Graham, W.....	Graham Front Light on Wharf.....	Dec.	19, 1904..	75	00
Gaulin, E. J.....	Pelee Passage.....	Aug.	2, 1904..	500	00
Hanson, Ole.....	Point au Baril.....	July	10, 1907..	300	00
Hackett, Mrs. A.....	Bois Blanc.....	June	27, 1901..	435	00
Hill, Thomas H.....	Lancaster.....	Aug.	27, 1877..	325	00
Haitze, Jean.....	Lonely Island.....	May	11, 1885..	450	00
Hawkins, David B.....	Peninsula Harbour.....	Aug.	31, 1891..	500	00
Harvey, James.....	Thessalon.....	Nov.	23, 1897..	300	00
Humes, David.....	Stribling Point Range.....	Aug.	27, 1902..	180	00
Hughes, Wm.....	Red River, Man.....	Feb.	12, 1892..	350	00
Johnson, Isaac S.....	Cherry Island.....	Nov.	5, 1883..	300	00
Jeffrey, Carson.....	Nigger Island Shoal.....	April	28, 1894..	200	00
Kingston City Clock.....	Corporation of Kingston.....		1844..	†100	00
King, Peter.....	Slate Island Light.....	Nov.	17, 1903..	400	00
Knapp, Charles.....	Lion's Head Wharf Light.....	Oct.	28, 1903..	75	00
Kilroy, Wm.....	Arnprior Island.....	"	1, 1905..	150	00
King, jr., J. J.....	Sulphur Island.....	May	15, 1905..	300	00
Lidwell, jr., J. L.....	Middle Island.....	June	2, 1906..	350	00
Labelle, Louis.....	Deep River Islet.....	May,	5, 1897..	100	00
Lafleur, Jos.....	Ste. Placide.....	May,	25, 1907..	140	00
Léger, Thomas.....	Lower End Lake St. Louis Lights and Lightships	Jan.	5, 1905..	500	00
Lamondin, Louis.....	Gereaux Island.....	July	30, 1901..	375	00
Lowe, Robert.....	Thornbury.....	April	12, 1887..	80	00
Lowry, Robert M.....	Port Elgin.....	Mar.	14, 1896..	80	00
Larochelle, J. A.....	Lake Temiskaming Lights.....	Oct.	6, 1899..	250	00
Lidwill, John R.....	Pelee Island.....	July	10, 1899..	300	00
Lacroix, H.....	Oka.....	Nov.	—, 1898..	130	00
Laberge, Albert.....	Green Shoal.....	May	20, 1902..	200	00
Leblanc, J. B.....	Lower Narrows.....	Jan.	4, 1904..	100	00
Lunan, J. W.....	Collingwood Lights.....	"	2, 1904..	350	00
Langlois, L. C.....	Pelee Passage.....	Feb.	25, 1904..	500	00
Lundy, Thos.....	Burlington Bay Lights.....	May	2, 1905..	350	00
Lochore, James.....	Blind River Wharf.....	"	31, 1906..	60	00
Manson, Wm. A.....	Pellee Passage, Lake Erie, Light and Steam Siren	Nov.	11, 1902..	650	00
Munroe, John Jacob.....	Lancaster Bar.....	June	8, 1892..	300	00
Masson, Lucas H.....	Point aux Anglais.....	Sept.	4, 1897..	200	00
Mongeon, Charles A.....	Way Shoal F. Range.....	May	23, 1887..	100	00
Matheson, Norman.....	Cape Robert, Algoma.....	Oct.	7, 1896..	350	00
Miller, John.....	Port Credit.....	Dec.	16, 1897..	150	00
Morrison, Jonathan.....	Ferris Island.....	Mar.	24, 1898..	200	00
Matheson, Angus.....	Gore Bay.....	July	10, 1903..	350	00
Manson, John.....	Colchester Reef, Light and Fog Bell.....	May	1, 1880..	850	00
Miron, Louis.....	Gargantua.....	Oct.	26, 1899..	450	00
Murray, William.....	Barrifield Common Range.....	May	17, 1900..	150	00
Montgomery, William...	Eastern Gap Light, Toronto.....	Oct.	16, 1895..	300	00
Mason, F. E.....	West End of Long Point.....	June	3, 1901..	400	00
Manders, Samuel.....	Lower Allumette Lake.....	July	26, 1901..	100	00
Martin, Edward.....	Michael Point.....	June	3, 1902..	120	00
Masters, Fred.....	Niagara-on-the-Lake Fog Alarm.....	Nov.	12, 1904..	400	00

* An annual allowance of \$60 as house rent. † An additional \$20 per month during winter when light in operation. ‡ Allowance of \$3.50 per 1,000 ft. for gas.

SESSIONAL PAPER No. 21

STATEMENT giving Names and Stations of Light-keepers, &c.—*Continued.*ABOVE MONTREAL—*Continued.*

Name.	Station.	Appointed.	Salary.	
			\$	cts.
Martin, Mrs. E. A.....	Boyd Island.....	Jan. 6, 1905..	250	00
Matheson, Daniel.....	Black Bear Island, Lake Winnipeg....	June 22, 1899..	200	00
McKenzie, Hugh A.....	Presqu'Isle, Owen Sound, Georgian Bay.		200	00
McDonald, Murdock.....	Point Clark.....	Jan. 8, 1897..	400	00
McDonald, Amos.....	Salmon or Wicked Point.....	July 12, 1897..	300	00
McKillop, Donald.....	St. Anicet.....	June 8, 1892..	230	00
McKay, Chas. S.....	Battle Island.....	Aug. 27, 1877..	500	00
McKenzie, William.....	Strawberry Island.....	May 4, 1893..	300	00
McLeod, Mrs. E.....	McQuestion Point.....	Feb. 22, 1904..	100	00
McAulay, Donald.....	Saugeen.....	Mar. 16, 1899..	120	00
McDonald, Lauchlin D.....	Mississagi Island.....	May 16, 1896..	450	00
McCool, James.....	Fort William Beacon Light, Ottawa River.	" 23, 1887..	90	00
McIver, Malcolm.....	Cherry Island.....	April 1, 1907..	500	00
McKay, John.....	Lyal Island.....	Oct. 27, 1884..	450	00
McLean, Arch.....	Owen Sound.....	Dec. 23, 1897..	150	00
McGaw, Thos.....	Kincardine.....	June 13, 1899..	400	00
McGrath, Bernard.....		Oct. 2, 1907..	350	00
McDougall, Neil.....	Squaw Island.....	April 25, 1901..	200	00
McKinnon, A.....	Point aux Pins Lights...	May 16, 1904..	400	00
McLeod, Kenneth.....	Cove Island Light and Fog Alarm.....	June 19, 1903..	750	00
McMenemy, Robt.....	Otter Island.....	Nov. 17, 1903..	400	00
McMaster, And.....	Nine Mile Point Fog Alarm.....	Aprli 1, 1900..	200	00
McPherson, George.....	Bishops Bay.....	Mar. 28, 1904..	150	00
McSherry, Patrick.....	Gibraltar Point.....	May 2, 1905..	400	00
McNab, A.....	Isle Perrot.....	" 20, 1905..	100	00
McLay, D. L.....	Stokes Bay Range.....	Aug. 25, 1904..	200	00
McKelvie, Geo.....	Eastern Gap Fog Alarm, Toronto....	June 13, 1905..	750	00
McKimmie, John.....	Niagara-on-the-Lake Range.....	Mar. 30, 1905..	150	00
McKay, John.....	Cockburn Island Wharf.....	July 1, 1906..	50	00
Neaves, Chas.....	Hamilton Island.....	July 10, 1906..	300	00
Osborne, Chas.....	Bronte, Ont.....	Oct. 20, 1906..	250	00
Ouelette, Godfrey.....	Buckom Point.....	Feb. 23, 1884..	200	00
O'Connor, P.....	Rainy River Lights.....	June 23, 1904..	250	00
O'Brien, Wm.....	Pickering.....	April 14, 1904..	125	00
Ottawa Electric Light Co.....	Britannia.....	Oct. 1, 1904..	150	00
Parker, John.....	Flower Pot Island.....	May 3, 1907..	300	00
Purvis, John.....	Great Duck Island Light and Fog Alarm.....	Mar. 9, 1898..	700	00
Pettypiece, Stephen.....	Lime Kiln Crossing.....	May 11, 1888..	350	00
Prosser, John.....	Fox Island.....	Sept. 14, 1896..	250	00
Proudfoot, Thos.....	East Neebish, Upper Range.....	Nov. 4, 1898..	100	00
Poirier, Siméon.....	Pont à Cadieux.....	May 4, 1904..	150	00
Port Darlington Co.....	Darlington.....		100	00
Perras, Adolphe.....	Welcome Island.....	May 10, 1906..	350	00
Rathbun Co.....	Deseronto.....	Oct. 14, 1884..	200	00
Rains, Evan.....	Shoal Point, Algoma.....	Nov. 24, 1884..	250	00
Rains, A. M.....	Sailor's Encampment.....	Aug. — 1892..	64	00
Rains, W. W.....	Rains Wharf Range.....	" — 1892..	7	00
Ritchie, John A.....	South Bay Mouth Range.....	Sept. 10, 1903..	150	00
Richardson, Wm. T.....	Michipicoten Hr., Algoma.....	Sept. 27, 1900..	200	00
Richardson, Thomas J.....	Western Islands Light and Fog Alarm...	June 27, 1901..	80	00
Richmond, John A.....	Snug Harbour Range.....	Oct. 7, 1902..	350	00
Roussain, J. J.....	Coppermine Point.....	June 27, 1904..	100	00
Roque, Frank.....	Killarney Lights.....	Feb. 28, 1905..	400	00
Root, Albert.....	Grenadier Island.....	Dec. 15, 1863..	250	00
Roddick, Robert.....	Peter Rock, or Gull Island.....	Mar. 23, 1872..	500	00
Rowe, Geo. Albert.....	Telegraph Island.....	Oct. 25, 1895..	200	00
Ross, A. M.....	Wabbi River.....	" 25, 1895..	600	00
Rowan, James.....	Morris or Victoria Island.....	Dec. 3, 1898..	120	00
Schade, John.....	Lake Ceebe.....	Aug. 29, 1906..	250	00
Secard, X.....	Graham B. Range.....	May 1, 1905..	75	00
Sinclair, John B.....	Providence Bay.....	Mar. 6, 1906..	390	00
Sauve, Honore.....	Caron Point.....	May 1, 1889..	60	00
Somers, Napoleon.....	Midland Point Range.....	June 19, 1900..	200	00
Shannon, William.....	Gross Point or Valleyfield.....	Sept. 27, 1866..	425	00
Shannon, George.....	".....	" 27, 1886..	175	00
Seguin, Grégoire.....	L'Original.....	May 8, 1894..	100	00
Shaw, Thos. K.....	Point Edward Range.....	Aug. 29, 1903..	150	00
Smithers, R. O.....	Mohawk Island.....	Mar. 31, 1896..	*400	00
Sutherland, Jno.....	Port Burwell.....	June 18, 1894..	225	00

* Allowance \$10 per annum for boat service.

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

ABOVE MONTREAL—Concluded.

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Simpson, Hedley V.....	Brighton Ranges.....	May	11, 1888..	540	00
Smith, H. E.....	Presqu'Isle.....	April	29, 1898..	350	00
Sullivan, Silas.....	Baskins Wharf.....	Dec.	22, 1896..	130	00
Sauvé, Honoré.....	Caron Point.....	Feb.	16, 1898..	60	00
Scott, Guy J.....	Point Peter Light and Fog Alarm.....	June	6, 1901..	650	00
Scott, Wm. J.....	Cornuna Range.....	April	23, 1901..	120	00
Stocker, Jos. L.....	Ste. Anne de Bellevue.....	May	20, 1902..	†125	00
Sweeney, Thomas.....	Tomahawk Island.....	Sept.	19, 1902..	200	00
Sicard, X.....	Graham Range, Back Light.....	April	29, 1905..	75	00
Schade, John.....	Lake Cecele.....	Aug.	31, 1906..	250	00
Taylor, Edward.....	Parry Sound Group.....	June	3, 1901..	800	00
Thibault, John.....	North Sister Rock.....	Dec.	6, 1905..	350	00
Thomas, John.....	Georges Island, Lake Winnipeg.....	Mar.	6, 1906..	350	00
Veech, Stannes.....	Nine Mile Point Light.....	Mar.	7, 1894..	450	00
Vallée, Charles.....	Hope Island.....	April	20, 1899..	450	00
Vorce, Marcellus.....	South Bay Point.....	Nov.	21, 1902..	200	00
Webster, Chas.....	Cabot Head, Light and Fog Alarm.....	May	10, 1898..	650	00
Whitmarsh, John.....	Snake Island.....	July	18, 1900..	350	00
Weir, John C.....	Belleville.....	April	4, 1901..	200	00
Wemp, Daniel.....	Centre Brother Island.....	Jan.	9, 1901..	200	00
Wilson, Robert.....	Campbell Island.....	"	8, 1905..	150	00
Whiteway, Chas.....	George's Island.....	Dec.	7, 1906..	350	00

† \$10 per annum boat service.

BETWEEN MONTREAL AND QUEBEC AND BELOW QUEBEC.

Abel, Philias.....	Barre à Boulard, Back Range.....	June	23, 1903..	75	00
Arcand, Alfred.....	Seven Islands, Light and Explosive Signal Station.....	May	20, 1898..	650	00
Auger, A.....	L'Islet, Richelieu.....	Jan.	20, 1905..	150	00
Ascah, James.....	Fame Point, Gaspé, Light and Fog Alarm.....	Sept.	2, 1880..	\$1,100	00
Arseneau, Nectaire.....	Etang du Nord.....	July	21, 1891..	350	00
Arpin, Joseph.....	Contreccœur Course, Front Light.....	Sept.	12, 1902..	100	00
Bertrand, Louis.....	Champlain, Back Pole Light.....	Sept.	12, 1902..	60	00
Baudet, Mrs. Laurent.....	Lotbinière, Front Light.....	"	3, 1903..	80	00
Beaudet, George.....	Lotbinière, Back Light.....	Jan.	4, 1883..	80	00
Beaudet, Charles.....	Platon Range.....	Aug.	24, 1894..	120	00
Beaumier, Elzéar.....	Cape de la Madeline Upper B.....	Oct.	1, 1905..	100	00
Bourque, Wilfrid.....	Bird Rocks, Light and Explosive Signal Station.....	Nov.	15, 1905..	1,300	00
Boulianne, Wm.....	Lark Islet Light.....	Sept.	1, 1872..	400	00
Bertrand, Auguste.....	Macquereau Point.....	Dec.	21, 1877..	*300	00
Banville, Joseph.....	Matane Light.....	Feb.	1, 1897..	300	00
Bourget, F.....	Percé.....	Mar.	18, 1893..	200	00
Breton, Narcisse.....	Rich Point.....	May	16, 1896..	500	00
Bourget, Charles.....	Cape Despair.....	Nov.	1, 1897..	†400	00
Bisson, Wm.....	Grand River.....	Oct.	22, 1896..	†150	00
Bouchard, Louis.....	Cape Salmon Light and Fog Alarm.....	May	16, 1896..	600	00
Boucher, Louis.....	Isle aux Raisins Range.....	April	13, 1898..	240	00
Boulanger, H.....	St. Thomas Wharf and Back Range Light.....	"	4, 1898..	80	00
Bujold, Louis.....	Carleton.....	May	25, 1899..	300	00
Boisvert, Alcide.....	Cape Charles, Front Light..	July	23, 1901..	150	00
Baron, Amedée.....	Cape Charles, Upper Back Light.....	June	26, 1901..	90	00
Bouchard, George.....	St. Irenée.....	Aug.	31, 1901..	||40	00
Bousquet, Félix.....	Verchères Village, Back Light.....	April	21, 1902..	70	00
Bilodeau, Joseph O.....	Bellechasse.....	June	15, 1903..	350	00
Bergeron, Mrs. Nap.....	St. Antoine, Lotbinière, Front Light.....	Mar.	21, 1902..	80	00
Bourdages, Pitre.....	Point Echouerie.....	July	25, 1903..	100	00
Boulliane, J. E.....	Point Noire, Range Lights.....	Jan.	18, 1904..	200	00
Blanchet, J. G.....	Father Point, Fog Alarm.....	—	—, 1904..	800	00
Brown, Charles.....	Pointe à-la-garde, Lightship.....	June	26, 1904..	300	00
Brunelle, Jos. L.....	Batiscan.....	April	27, 1905..	80	00
Bélanger, F. L.....	Ste. Félicité, Fog Alarm.....	Jan.	14, 1905..	600	00
Bouchard, Wilfrid.....	Eboulements.....	April	25, 1906..	50	00
Boudrault, Eustache.....	Isle aux Codures.....	"	20, 1906..	40	00

* Allowance, \$20 per annum for blowing fog horn; \$12 per annum for keeping road in repair. † Allowance, \$20 per annum for blowing fog horn. ‡ Allowance, \$30 per annum for blowing fog horn. || Per season of navigation. § Assistant, \$400.

SESSIONAL PAPER No. 21

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

BETWEEN MONTREAL AND QUEBEC AND BELOW QUEBEC—Continued.

Name.	Station.	Appointed.	Salary.
			\$ cts.
Cantara, Elzéar.....	Gallia Bay, Upper Range.....	May 3, 1907..	350 00
Carignan, P. L.....	Champlain, Main Light.....	Oct. 1, 1902..	80 00
Cormier, Wm.....	Amherst Island.....	April 26, 1871..	350 00
Colton, P. J.....	Belle Isle, Light and Fog Alarm.....	Jan. 30, 1902..	*1,100 00
Côté, Luc.....	Cape Chat, Light and Explosive Signal Station.....	Dec. 3, 1901..	*500 00
Campbell, John W.....	Cape Norman Light and Fog Alarm.....	April 12, 1890..	720 00
Costin, Eugène.....	Cape Rosier Light and Fog Alarm.....	Nov. 4, 1890..	800 00
Charland, Herman.....	Ile Ronde.....	Aug. 1, 1907..	500 00
Collins, Geo F.....	Entry Island, Magdalen Islands.....	July 30, 1901..	250 00
Croteau, Téléphore.....	Ste. Croix, Front Range.....	Mar. 28, 1901..	70 00
Chicoine, Alphonse.....	Isle Bouchard, Range Back Light.....	April 23, 1902..	80 00
Chicoine, F. Xav.....	Verchères Traverse, Front Light.....	" 21, 1902..	80 00
Charbonneau, Philéas.....	" " Back Light.....	" 21, 1902..	70 00
Comtois, Joseph.....	Isle Ste. Thérèse Back Light, Isle Deslauriers, Range.....	Feb. 11, 1903..	80 00
Couchesne, Zotique.....	Ile du Pads, Range.....	Aug. 8, 1907..	275 00
Carrière, H.....	Boucherville, Isle St. Joseph.....	" 26, 1903..	80 00
Caisse, Louis.....	Petite Traverse, Contrecoeur, Front Light.....	April 22, 1904..	100 00
Caron, Alphonse.....	Lower Traverse, Light and Fog Alarm.....	Oct. 11, 1902..	1,400 00
Coulombe, M.....	Chlorydormes.....	" 15, 1904..	100 00
Chartier, Adolphe.....	Hochelaga Lights, Montreal Harbour.....	Aug. 5, 1904..	†25 00
Couillard, A.....	East Point, Anticosti, Lightship.....	May 27, 1904..	1,000 00
Chisholm, John.....	New Carlisle, Wharf Light.....	Aug. 1, 1903..	
Chevrier, P.....	Byron Island.....	June 23, 1905..	400 00
Cunningham dit Claudé, E.....	Cap aux Corbeaux, Bay St. Paul, Wharf Light.....	—, 1905..	70 00
Caron, Elisée.....	Métis.....	April 1, 1906..	300 00
Cournoyer, Pierre.....	St. Anne de Sorel, F.....	Mar. 28, 1906..	100 00
Cullen, Francis.....	Carleton Wharf.....	July 12, 1907..	75 00
De Tenneville, Joseph.....	Chambly Basin, Range Light.....	May 23, 1907..	150 00
Dermarais, Philéas.....	River St. Francis.....	July 2, 1897..	†20 00
Demers, Antoine.....	Pointe à Basile, Back Light.....	" 22, 1904..	130 00
Douville, Elzéar.....	" Front Light.....	Feb. 6, 1904..	130 00
Doré, François.....	St. Antoine, Lotbinière, Back Light.....	Mar. 21, 1902..	120 00
Dubois, Louis.....	Isle à la Bague.....	April 14, 1903..	150 00
Dubois, Octave.....	Greenly Island, Light and Fog Alarm.....	Oct. 12, 1903..	800 00
Ducharme, Jos.....	St. Ours, Traverse.....	April 18, 1904..	100 00
Duval, Norbert.....	Contrecoeur Course, Back Light.....	" 22, 1904..	100 00
Daigle, Nap.....	Barre à Boulard, Front Range.....	May 28, 1904..	200 00
Desbiens, Eugène.....	Poste St. Martin, Front Light.....	April 12, 1905..	50 00
Electric Light Co. of Roberval.....	Roberval, Beacon Lights.....	June 21, 1899..	100 00
Fournier, Alfred.....	Upper Traverse.....	April 14, 1900..	600 00
Fugère, Léandre.....	Batiscan, Front Light.....	" 29, 1868..	80 00
Fiset, Jean H.....	Lake St. Peter, Lightship No. 2.....	" 22, 1875..	500 00
Fantaine, Edmond.....	Cape Bauld, Lighthouse and Fog Alarm.....	—, 1905..	800 00
Faffard, Victor.....	Point de Monts, Light and Explosive Signal Stn.....	Aug. 1, 1889..	††500 00
Farser, Pierre T.....	Red Islet.....	April 12, 1890..	150 00
Ferland, Nap.....	Ste. Petronille.....	Sept. 3, 1901..	250 00
Fletcher, James.....	Longue Pointe, Traverse.....	May 16, 1904..	125 00
Fournier, Arthur.....	Grande Vallée.....	Oct. 15, 1904..	100 00
Filteau, E.....	Ste. Emélie, Back Light.....	Mar. 16, 1905..	80 00
Gingras, Omer.....	Bécancour, F.....	Oct. 24, 1905..	150 00
Geoffrion, Azarie.....	Varennes.....	May, 1, 1903..	70 00
Giguère, Denis.....	Lavaltrie, Range.....	" 24, 1870..	300 00
Grenier, Solomon.....	Newport Point.....	June 3, 1897..	150 00
Guyon, Joseph.....	Verchères Village, Front Light.....	April 21, 1902..	80 00
Gagné, François.....	L'Ange Gardien, Island Orleans, Front Light.....	Nov. 10, 1902..	70 00
Gauthier, Frs.....	Port St. Martin, B.....	April 27, 1907..	50 00
Granier, Henri.....	Bersimis, Range Lights.....	Aug. 8, 1903..	100 00
Goudreau, Wm.....	Isle au Belier, Lake St. John.....	Oct. 30, 1901..	75 00
Girard, Henry.....	Murray Bay, Wharf Light.....	July 13, 1903..	50 00
Godbout, Joachim.....	St. Laurent, Island of Orleans.....	April 15, 1904..	300 00
Guyon, Ernest.....	Contrecoeur, Verchères Range, Back Light.....	Nov. 11, 1904..	125 00
Goudreau, Luce.....	Rivière du Moulin, Back Light.....	May 9, 1905..	50 00
Harper, Thos.....	Oak Point, Range.....	Jan. 1, 1907..	100 00
Hébert, Moïse Manuel dit.....	Cap de la Magdeleine, Lower Range, Front Light.....	May 11, 1888..	80 00
Harvey, André.....	Chicoutimi Wharf Light.....	" 30, 1889..	40 00

* Allowance, \$100 per annum for horse-keep. ** Allowance, \$25 per annum for hauling supplies. † Allowance, \$700 for two assistants and \$200 for board during season of navigation. ‡ Per month during season of navigation. * With a crew for the vessel, paid by the department. † Per month during season of navigation †† Allowance of \$75 per annum for horse-keep. ‡† Allowance of \$50 per annum for horse-keep. || Allowance of \$50 per annum for water, &c. ‡ Per month during navigation.

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.
BETWEEN MONTREAL AND QUEBEC AND BELOW QUEBEC—Continued.

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Heroux, Didier.....	Nicolet Range, F.....	Dec.	5, 1906..	100	00
Heroux, Edmond.....	" B.....	"	5, 1906..	100	00
Houde, Emile.....	Grondines Point Range, Back Light.....	June	20, 1904..	100	00
Horrie, Arthur.....	Port Daniel West.....	—	1906..	100	00
Hubert, Christophe.....	Anticosti Pt.....	July	27, 1907..	100	00
Irvine, John T. A.....	Red Island, Lightship and Fog Whistle.....	Mar.	2, 1900..	*500	00
Kennedy, Thomas.....	Sandy Beach.....	Aug.	9, 1904..	400	00
Landry, Elie.....	Natastquan.....	June	25, 1906..	250	00
La Course, Ernest.....	Cape Madeline Village.....	Mar.	13, 1906..	200	00
Lafleche, Désiré.....	Lake St. Peter, Lightship No. 1.....	April	12, 1887..	450	00
Lachapelle, Jean B.....	Repentigny, Front Light.....	Feb.	1, 1861..	75	00
Langlois, Antoine.....	River du Chene, Langlais Point.....	July	11, 1888..	125	00
Laliberté, Arthur.....	Ste. Emelie, Front Range.....	Sept.	24, 1880..	90	00
Langlois, F. X.....	Port Daniel.....	Feb.	22, 1907..	60	00
Langevin, Nap.....	Ile Deslauriers.....	Dec.	18, 1906..	120	00
Lord, Joseph.....	North of Halfway Point Range.....	May	5, 1903..	170	00
Laporte, Ivon.....	Ile Marie Light, Bouchard Range.....	April	21, 1902..	120	00
Lapointe, F. X.....	Isle à l'Aigle Range, Front Light.....	May	1, 1903..	100	00
Lavoie, M.....	Rivière Valin Range.....	—	1893..	80	00
LeHuguet, Francois.....	Cape Gaspé, Light and Explosive Signal Station.....	Oct.	22, 1896..	650	00
Lindsay, Wm.....	Gaspé Wharf Light.....	June	14, 1900..	42	00
Lindsay, R. W.....	Green Island, Light and Explosive Signal Station.....	Sept.	25, 1888..	650	00
Loisel, John.....	Paspebiac.....	Aug.	27, 1894..	†150	00
LeBlanc, Régis.....	White Island Reef, Lightship and Fog Whistle..	Jan.	11, 1878..	†500	00
Leblanc, Adolphe.....	Gentilly.....	April	2, 1907..	250	00
Lemieux, Z.....	Southwest Point, Anticosti.....	July	10, 1900..	600	00
Lachance, Louis.....	St. John, Island of Orleans.....	Sept.	26, 1896..	300	00
Leclerc, Geo.....	Pillars and Algernon Rock Lights.....	July	30, 1901..	650	00
Lavoie, F.....	Anse St. Jean Wharf Light.....	Mar.	13, 1889..	40	00
Levesque, Arthur.....	Grande Isle, Kamouraska.....	Feb.	19, 1901..	400	00
Leclerc, Auguste.....	Martin River.....	Sept.	3, 1902..	300	00
Lemieux, F. X.....	Barachois de Malbaie.....	Mar.	6, 1903..	60	00
Laprise, Emile.....	Anticosti South, Point Light and Fog Alarm.....	April	18, 1903..	800	00
Levesque, Dom.....	Pointe aux Origineaux.....	Oct.	5, 1903..	350	00
Lepage, Joseph.....	St. Francis, Island of Orleans, Front Light.....	April	20, 1876..	75	00
Lacroix, Alcidas Joseph.....	Contrecoeur Traverse, Front Light.....	"	14, 1904..	75	00
Lacroix, Alfred.....	" " Back Light.....	July	26, 1904..	100	00
Letendre, Louis.....	Ile de Grace, Sorel.....	April	1, 1906..	100	00
Letourneau, Louis.....	Mont Louis.....	"	1, 1906..	100	00
Lavoie, Ubald.....	Rimouski Wharf.....	May	22, 1906..	50	00
Lefrancois, X.....	St. Anne des Monts.....	"	"	100	00
Lanciault, Frs.....	Ste, Anne de Sorel, B.....	Mar.	28, 1906..	100	00
Laporte, J. B.....	St. Ours Traverse, Front Light.....	—	1904..	125	00
Lefrancois, H.....	Ste. Anne des Monts.....	Oct.	15, 1904..	100	00
Letourneau, Louis.....	Mont Louis.....	"	15, 1904..	100	00
Lobel, Esdras.....	Lower Traverse Lightship.....	April	21, 1900..	2,300	00
Labranche, W.....	Monté du Lac or Cap Brulé.....	May	2, 1905..	400	00
Lavallée, J.....	Flower Island, Nfld.....	April	12, 1905..	600	00
Massicotte, Jos.....	Champlain, Upper Front.....	April	1, 1906..	100	00
Manseau, Francois.....	Fort St. Francis.....	Mar.	27, 1900..	240	00
Malo, Joseph.....	Isle Ste. Thérèse, Lower Range.....	Feb.	1, 1897..	130	00
Marchand, Ferdinand.....	Citrouille Point.....	April	27, 1896..	200	00
Martin, Paul.....	St. Valentine Range.....	"	28, 1873..	150	00
Molson, Mrs. Alexander.....	Molson's Island, Lake Memphremagog.....	From year to year.		**2	50
Malouin, Alfred.....	Anticosti, West Point, Light and Explosive Signal Station.....	July	1, 1877..	††750	00
Mailhot, Delphis.....	Gentilly.....	April	2, 1907..	150	00
Marceau, Louis.....	St. Francis, Island of Orleans, Back Light.....	"	1, 1884..	75	00
Mayrand, Eugène.....	Grondines, Upper Range, Front Light.....	June	20, 1904..	125	00
Morin, Hypolite.....	Long Pilgrim.....	April	29, 1898..	||340	00
Marcotte, Mrs. P. L.....	Point Bleue, Lake St. John.....	Nov.	28, 1898..	40	00
Morin, Alex.....	Rivière à la Pipe.....	Oct.	3, 1901..	50	00
Morin, Alfred.....	Anse aux Griffons.....	"	15, 1904..	100	00
Martel, C. E.....	Georgeville Wharf Light.....	May	19, 1905..	**1	50
McGee, James A.....	Ash and Bloody Island.....	"	26, 1903..	200	00
McWilliams, John J.....	Father Point Light.....	June	1, 1876..	*450	00
"	Port Daniel.....	Oct.	7, 1902..	60	00
Mourant, John...	Gascons Wharf.....	June	8, 1906..	50	00

* Allowance of \$1,900 per annum for assistance of engineer and necessary crew. † Allowance, \$30 per annum for blowing fog-horn. ‡ Allowance, \$2,300 per annum for assistance of engineer and necessary crew. | Allowance, \$50 per annum for horse keep. ** Per week during season of navigation. || Allowance of \$50 per annum for horse keep. †† Allowance of \$20 per annum for horse keep. || Allowance of \$68 per annum, &c. * Allowance of \$10 per annum for water. † Per week during season of navigation. | Per month during season of navigation. ‡ Allowance, \$50 per annum for horse keep.

SESSIONAL PAPER No. 21

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

BETWEEN MONTREAL AND QUEBEC AND BELOW QUEBEC—Continued.

Name.	Station.	Appointed.	Salary.
			\$ cts.
Morin, Nazaire.....	Grosse Roche.....	" 25, 1906	500 00
Mongeau, Paul.....	Ile du Moin, B. Range..	Dec. 27, 1906.	100 00
Paré, Olivier.....	L'Ange Gardien, Island of Orleans, Back Light.	Nov. 10, 1902.	70 00
Pelletier, Tancrede.....	Egg Island.....	July 1, 1901.	500 00
Paquin, Sylva.....	Pointe du Lac.....	May 2, 1900.	100 00
Paul, Edouard.....	Isle du Grace.....	Sept. 7, 1871	240 00
Peloquin, Louis.....	Gallia Bay, Lower Range.....	May 3, 1907	350 00
Peters, J. H.....	Black Point, Lake Memphremagog.....	June 1, 1891.	†1 50
Patterson, J. A.....	Wadleigh Point, Lake Memphremagog.....	" 1, 1891.	†1 50
Paquet, Pierre.....	Ste. Famille, Back Range, Orleans Channel....	Oct. 19, 1885.	70 00
Poulin, Alfred.....	Ste. Famille, Island of Orleans, Front Light....	" 26, 1898.	70 00
Pinault, Louis.....	Bicquette Island, Light and Fog Alarm.....	" 6, 1900.	700 00
Perrault, Henri.....	St. Pierre les Becquets.....	May 26, 1901.	70 00
Pilote, Auguste.....	Poste St. Martin, Back Light.....	April 22, 1907.	100 00
Poitrass, Pierre.....	Portneuf Range, B.....	Oct. 16, 1904.	100 00
Pothier, Louis.....	Champlain, Upper Back Range.....	April 1, 1906.	100 00
Puize, L. J.....	Rivière du Loup, Wharf Light.....	—, 1906.	70 00
Plante, Onésime.....	Louisville Range, Lights.....	June —, 1907.	150 00
Provencal, Etienne.....	Ile du Moin, Back Range.....	Dec. 27, 1906.	125 00
Reaves, Samuel.....	Ile Ste. Thérèse, Upper Range.....	Oct. 12, 1870.	270 00
Richelieu and Ontario Navigation Co.....	Sorel, Wharf Lights.....		85 00
Rivet, Léon.....	Repentigny, Back Light.....	April 28, 1894.	75 00
Rodier, Benj.....	Guard Pier.....	Sept. 12, 1907.	500 00
Richard, Alphonse.....	Brandy Pots.....	Oct. 7, 1878.	400 00
Rennie, E. H.....	Cape Ray, Light and Fog Whistle.....	" 19, 1884.	800 00
Roberge, C. Honoré.....	St. Pierre, Back Range, Orleans Channel.....	" 19, 1885.	70 00
Rodrique, Joséphine.....	Portneuf.....	May 16, 1903.	250 00
Racette, Widow of D.....	Ste. Croix, Back Range.....	Dec. — 1900.	70 00
Roy, Charles.....	Bellerive Park Lights, Montreal Harbour.....	Aug. 5, 1904.	25 00
Savage, Jas.....	Chambly Basin R. & W.....	July 10, 1907.	100 00
St. Laurent, E.....	Petite Traverse Contrecoeur, Back Light.....	April 22, 1904.	100 00
Sailvail, Omer.....	Isle à la Pierre.....	May 6, 1897.	250 00
Savarie, Eusebe.....	Isle à l'Aigle, Back Range Light.....	" 1, 1903.	100 00
Savard, Dorilas.....	Savards Range.....		80 00
Sasseville, F. J.....	Cape Magdalen, Light and Fog Whistle.....	June 9, 1886.	700 00
Ste. Croix, George.....	Point Peter.....	Oct. 22, 1896.	450 00
Savard, Hy.....	St. Siméon Wharf.....	" 25, 1906.	40 00
Savard, Jno.....	River Caribou Front Light.....	Aug. — 1898.	50 00
Simard, H.....	" Back Light.....		50 00
Sauvageau, Archille.....	Grondines Point Range, Front Light.....	June 20, 1906	250 00
Sauvageau, Jos.....	Grondines Upper Range, Back Light.....	" 20, 1904.	100 00
Samuel, Andr.....	Fox River.....	Oct. 15, 1904.	100 00
Saguenay Lumber Co.....	Escoumains Range.....	Sept. 10, 1906.	150 00
Tourigny, A.....	Becancour.....	Oct. 24, 1905.	100 00
Thurber, Wm. A.....	Ste. Croix.....	Mar. 28, 1901.	175 00
Tremblay, W. T.....	Goose Cape.....	April 4, 1888.	250 00
Tremblay, Edmond.....	Portneuf en bas.....	May 16, 1903.	300 00
Tremblay, George.....	River du Moulin, Front Light.....	Sept. 19, 1889.	50 00
Tremblay, Pitre.....	St. Alphonse Wharf Light.....	June 19, 1895.	40 00
Tremblay, Alexis.....	Heath or East Point, Anticosti, Light and Explosive Signal station.....	July 25, 1900.	600 00
Turbide, André.....	Grande Entrée.....	May 23, 1907.	125 00
Tetreault, Honore.....	Contrecoeur, Vercheres Range, Front Light.....	Nov. 11, 1904.	†40 00
Tessier, Armand.....	Point Bleue.....	June 9, 1904.	†1,100 00
Thomas, Paul.....	Belle Isle, North End, Light and Fog Alarm....	July 8, 1904.	80 00
Toupin, P.....	Cape Madeleine, Lower Range, Back Light.....	April 26, 1905.	75 00
Valliancourt, Godfrey.....	Cape de la Madeline, Upper Range, Front Light.	Oct. 1, 1906.	600 00
Vigneau, Placide.....	Perroquet Island.....	Sept. 19, 1892	70 00
Vezina, Olivier.....	St. Pierre, Front Range, Orleans Channel.....	Oct. 28, 1897.	320 00
Vezina, Desire.....	Crane Island.....	April 26, 1904	150 00
Whitman, Wm. Gunn.....	Lacolle Range.....	Jan. 18, 1904	*1 50
Wheeler, W.....	Lead Mines, Lake Memphremagog.....	June 1, 1891.	†1,100 00
Wyatt, Thomas M.....	Amour Point, Forteau Bay, Light and Fog Alarm.....	Oct. 18, 1889.	60 00
Willett, B. V.....	New Richmond, Duthie Point.....	" 16, 1903.	400 00
Weaner, J. B.....	Lake St. Peter Light ship No. 3.....	May 7, 1904.	

* Per week during season of navigation. † Allowance of \$75 per annum for horse keep. ‡ Allowance of \$12 per annum for supplying water.

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

NEW BRUNSWICK.

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Andrews, Hugh.....	Partridge Island.....	May	1, 1906..	1,200	00
Arseneau, James.....	Dalhousie Harbour.....	June	18, 1894..	100	00
Allain, Joseph.....	Hay Island Beacon Light.....	May	21, 1895..	150	00
Bowie, John.....	Oak Point.....	June	2, 1906..	100	00
Balmer, Matthew.....	Oak Point, St. John River.....	April	27, 1900..	80	00
Barry, J. R.....	Cape Tormentine, N.B.....	26	Mar. 1906..	125	00
Barbour, Jas. G.....	Cape Enrage Light and Fog Alarm.....	May	11, 1888..	800	00
Bent, A. J. Percy.....	Jourimain.....	Jan.	25, 1901..	300	00
Blacklock, Fred. G.....	Cape Spencer.....	Mar.	2, 1888..	400	00
Brown, Charles.....	Quaco West End Light.....	Nov.	25, 1884..	400	00
Bradshaw, L. B.....	Quaco West Head Fog Alarm.....	Aug.	2, 1887..	400	00
Brune, John David.....	Goose Lake.....	May	11, 1888..	†250	00
Bourdeau, Jos. B.....	Petit Rocher.....	Feb.	26, 1896..	150	00
Blakely, Lawrence.....	Harper Point.....	Sept.	9, 1887..	75	00
Bellemore, F.....	Dipper Harbour.....	Mar.	12, 1895..	100	00
Belliveau, A. P.....	Fort Folly Point.....	June	23, 1903..	225	00
Brennan, Robert.....	Oromocto.....	Mar.	18, 1903..	80	00
Belding, R. L.....	Lepreau Light.....	June	30, 1905..	550	00
Basque, F. D.....	North Tracadie Range.....	Aug.	20, 1904..	275	00
Burnham, Rupert.....	Big Duck Island.....	June	25, 1906..	550	00
Butler, Thomas.....	Nannat Rock.....	May	1, 1907..	400	00
Cochran, Fredk. M.....	Quaco Pier Light.....	Mar.	25, 1892..	100	00
Cummings, Geo.....	Campbellton Range Light.....	Jan.	1, 1880..	100	00
Chapman, James.....	Baie du Vin Island Range Light.....	July	24, 1882..	200	00
Crandall, D. H.....	Greys Point Pole Light.....	April	13, 1900..	70	00
Carney, John W.....	Perry Point.....	Sept.	25, 1900..	80	00
Copp, A. B.....	Anderson Hollow.....	Mar.	30, 1903..	100	00
Cormier, Jadus P.....	Buctouche Bar.....	July	26, 1902..	200	00
Chaffey, Harry V.....	Cherry Island Fog Bell.....	Aug.	7, 1903..	150	00
Dines, Sydney.....	Letite Fog Alarm.....	May	27, 1907..	580	00
Dines, Chas. H.....	Letite Light.....	May	27, 1907..	50	00
Dickson, Elia C.....	Pea Point.....	Nov.	16, 1898..	250	00
Delaney, John.....	Grand Beach Light.....	Oct.	7, 1880..	125	00
Dalzell, Geo. Y.....	Swallow Tail.....	Mar.	18, 1893..	400	00
DeGrace, John.....	Indian Point.....	June	4, 1889..	150	00
Day, Mrs. W. A.....	Belyea Point.....	Nov.	21, 1906..	90	00
Daigle, U. D.....	Black Lands Gully.....	July	13, 1903..	100	00
Diagle, Victor.....	Sapin Point.....	May	28, 1903..	25	00
Doucette, Fred. F.....	Caraquet Front Range Light.....	Oct.	14, 1903..	50	00
Dalzell, Coleman Grant.....	Gannet Rock and Explosive Signal Station.....	July	1, 1904..	550	00
Dakin, Lloyd Chas.....	Grand Harbour.....	May	2, 1904..	400	00
Egan, Edward H.....	Belloni Point.....	May	17, 1902..	100	00
Eldridge, John M.....	Drews Head, Beaver Harbour.....	"	2, 1904..	250	00
Frankland, Louis.....	Gull Cove.....	Nov.	14, 1902..	80	00
Frawley, Frank.....	Lepreau Fog Alarm.....	June	30, 1905..	900	00
Flewelling, Mrs. M.....	Flewelling Landing.....	April	12, 1890..	80	00
Fanjoy, William.....	Fanjoy Point, Grand Lake.....	Dec.	15, 1897..	80	00
Ferguson, W. G.....	South Tracadie.....	Mar.	23, 1898..	150	00
Fox, Fraser.....	Gagetown, St. John River.....	April	22, 1904..	80	00
Fitzgerald, Warren.....	Head Harbour Light.....	June	29, 1904..	300	00
Gould, Francis T.....	Shediac North Channel Range.....	Jan.	13, 1899..	70	00
Gregg, Wilson.....	St. John Harbour Beacon.....	—	1901..	350	00
Hendry, Mrs. A. M.....	Hendry Farm.....	April	28, 1899..	80	00
Hayden, Michael.....	Pokemouche.....	Oct.	17, 1888..	300	00
Henderson, Arthur.....	Midjie Bluff.....	"	4, 1894..	200	00
Hamm, Chas. P.....	Musquash.....	Jan.	14, 1879..	300	00
Hachey, Octave.....	Pokesudie Island.....	July	12, 1881..	180	00
Harvey, W. L.....	Machias Seal Island Light and Fog Alarm	"	8, 1904..	1,000	00
Hannah, Mrs. B. G.....	Spruce Point.....	Sept.	15, 1892..	120	00
Harts, Thos.....	Shediac Harbour Lights.....	Feb.	17, 1905..	80	00
Hilyard, Chas. D.....	Head Harbour Fog Alarm.....	May	15, 1907..	700	00
Hooley, John.....	Tiner Point Fog Alarm.....	June	30, 1905..	500	00
Ingalls, Turner.....	Southwest Head, Grand Manan.....	Dec.	4, 1900..	500	00
Ingersoll, Clyde S.....	S.W. Head Grand Manan.....	July	10, 1907..	500	00
Kirkpatrick, Joseph.....	Passamaquoddy Bay.....	Feb.	3, 1898..	450	00

† Allowance \$300 for assistance.

SESSIONAL PAPER No. 21

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

NEW BRUNSWICK—Continued.

Name.	Station.	Appointed.	Salary.
			\$ cts.
Lantaigne, Gervais.....	Caraquet Island.....	June 16, 1888..	200 00
Leblanc, Charles P.....	Cassie Point.....	May 4, 1872..	250 00
Looney, Thos. E.....	Greenland, St. John River.....	July 14, 1886..	200 00
Lochart, Edwin.....	Ward Point.....	Oct. 20, 1903..	80 00
Legere, P. L.....	Caraquet Back Range Light.....	" 14, 1903..	50 00
Mills, George.....	Fox Island, N. W. Point.....	June 23, 1897..	200 00
Morrison, Peter, Jr.....	Portage Island.....	May 17, 1892..	300 00
Morrison, Duncan.....	Sheldrake Island Lights.....	Feb. 25, 1880..	300 00
Maillet, D. O.....	Buctouche Inner Range.....	July 7, 1883..	150 00
Matheson, R. B.....	Newcastle.....	April 18, 1898..	100 00
Murray, Michael.....	Middle Island.....	" 10, 1902..	200 00
Maloney, Wm.....	Marks Point.....	Nov. 7, 1903..	120 00
McCutcheon, B. F.....	Gray's Landing.....	Mar. 6, 1907..	70 00
McLeod, J. H.....	Bliss Island.....	Oct. 17, 1900..	350 00
McLennan, Kenneth.....	Escuminac Light and Fog Alarm.....	Mar. 7, 1892..	750 00
McIntosh, Chas.....	Lower Neguac Wharf Lights.....	Dec. 10, 1892..	100 00
McBain, Alex.....	Cox Point, Grand Lake.....	May 6, 1898..	80 00
Macdonald, R. P.....	Musquash Island.....	Jan. 28, 1901..	80 00
McMann, Robert Harvey.....	McMann Point.....	Jon. 2, 1901..	80 00
McNeil, Henry H.....	Dalhousie Beacon Lights and Douglas Island Lt.....	Jan. 1, 1880..	250 00
McConnell, J. Robert.....	Miscou Gully.....	Sept. 9, 1887..	100 00
McLean, R.....	Miramichi Bay Light Ship.....	April 12, 1902..	‡400 00
Nevers, George F.....	Jemseg.....	Nov. 24, 1884..	80 00
Preston, S.....	Preston Beach Lights.....	July 11, 1889..	125 00
Pendlebury, Wm. J.....	St. Andrews.....	April 10, 1889..	250 00
Pickett, Robert E.....	Palmer's Landing Wharf Light.....	May 11, 1897..	80 00
Parker, Alvin.....	Mulholland Point.....	June 13, 1901..	200 00
Palmer, E. B.....	Hampstead Wharf.....	Nov. 6, 1900..	80 00
Rooney, Theobald.....	Passamaquoddy Bay East.....	Jan. 1, 1906..	350 00
Russell, James R.....	Grindstone Island Light and Fog Alarm.....	Jan. 13, 1899..	700 00
Robichaud, Joseph L.....	Miscou Light and Fog Whistle.....	Nov. 11, 1902..	800 00
Robinson, John.....	Neguac Main Light.....	June 30, 1896..	150 00
Richard, Peter F.....	Richibucto Head.....	May 30, 1895..	185 00
Robertson, Charles M.....	Robertson Point, Grand Lake.....	June 30, 1897..	80 00
Robertson, Meier.....	Shediac Island Range.....	Dec. 29, 1873..	250 00
Ross, Elijah.....	Negro Point.....	Mar. 5, 1878..	400 00
Robichaud, Jude.....	Richibucto Channel Range.....	June 16, 1902..	200 00
Robichaud, Henri B.....	Buctouche Range.....	June 21, 1884..	150 00
Roherty, J. A.....	Little Belledune.....	Feb. 21, 1905..	100 00
Robertson, J. A. D.....	Heron Island.....	April 1, 1902..	200 00
Richard, Jos. F.....	Richibucto Bar Outer Range.....	June 16, 1902..	150 00
Sinclair Lumber Co.....	Miramichi Draw Bridge.....	Oct. 8, 1904..	80 00
Splane, Alfred.....	Pines Point Fog Alarm.....	Aug. 21, 1905..	750 00
Sutherland, Geo. C.....	Bathurst Harbour Range.....	Mar. 20, 1882..	200 00
Scott, Mrs. Ed.....	Stonehaven.....	July 8, 1904..	100 00
Spragg, T. W.....	Hatfield Point.....	June 27, 1903..	80 00
Sauvie, Adelard.....	Shippigan.....	April 20, 1906..	280 00
Tatton, Geo. T.....	Long Eddy Point Fog Whistle, Grand Manan.....	Oct. 16, 1866..	750 00
True, John Howard.....	Wilmot Bluff.....	Sept. 12, 1899..	80 00
Upton, Robert.....	Bridge Point.....	" 11, 1899..	80 00
Williston, Seymour.....	Swashway Range, Fox Island.....	June 4, 1902..	300 00
Wagner, Richard.....	Sand Point, St. John River.....	" 7, 1883..	80 00
Williams, Forrest W.....	Williams Landing.....	May 11, 1897..	80 00
Wright Ethelbert.....	Southern Wharf.....	Mar. 6, 1906..	500 00

NOVA SCOTIA.

Amero, Chas. A.....	Argyle.....	Nov. 9, 1897..	400 00
Amero, Geo. D.....	Pubnico.....	Feb. 6, 1893..	240 00
Amirault, James.....	Sissiboo.....	July 11, 1899..	200 00
Beaman, Edwin.....	Digby Pier.....	May 29, 1897..	100 00
Bonner, John Charles.....	Point Aconi.....	Nov. 6, 1903..	200 00
Burgess, Watson.....	Port l'Hébert.....	July 26, 1892..	150 00
Bontillier, R. J., Supt.....	Sable Island Humane Est.....	Nov. 13, 1884..	*700 00

* With board for self and family and assistants and allowance for salaries of staff.

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

NOVA SCOTIA—Continued.

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Boutillier, Henry.....	Indian Harbour, Paddy's Head.....	June	6, 1901..	150	00
Bollong, James.....	Pope Harbour.....	Aug.	6, 1877..	300	00
Bourgeois, Philip.....	Cheticamp Range.....	May	23, 1898..	150	00
Boudrot, B.....	Paulamon, Hawk Islet.....	Dec.	7, 1904..	250	00
Baker, Thomas.....	Peases Island.....	May	19, 1879..	350	00
Brackett, Wm.....	Herring Cove.....	Aug.	28, 1897..	100	00
Belliveau, John H.....	Belliveau Cove.....	Feb.	16, 1889..	800	00
Brownell, Luther.....	Cold Spring Head.....	Mar.	27, 1901..	120	00
Buchanan, Angus A....	Neil Harbour.....	Aug.	14, 1899..	150	00
Buckman, Chas.....	Grand Passage.....	Jan.	7, 1901..	250	00
Boudrot, W. C.....	Port Felix.....	July	16, 1902..	250	00
Burke, Henry.....	Country Harbour, Green Island.....	June	11, 1902..	400	00
Burke, Martin.....	Bourgeois Inlet.....	Dec.	1, 1902..	60	00
Burgess, Lewis E....	Walton Harbour.....	July	13, 1903..	150	00
Breen, Michael.....	Flint Head.....	Aug.	20, 1904..	450	00
Bishop, E. W.....	Porters Point.....	April	29, 1904..	100	00
Baker, John.....	Mary-Joseph.....	Jan.	6, 1905..	325	00
Buchanan, M.....	Munroe's Point.....			150	00
Boyle, Geo.....	Wallace Harbour Range.....	May	23, 1905..	150	00
Bone, Chas.....	Pictou Custom House.....	June	14, 1907..	100	00
Bourke, Fredk. A..	Ouitique Islands.....	Feb.	16, 1907..	350	00
Chiasson, Germain.....	Caveau Point Range Lights.....	Aug.	20, 1897..	150	00
Chiasson, Joseph P.....	Grand Etang, Inverness.....	May	21, 1901..	60	00
Creighton, H. H.....	Creighton Road.....	"	6, 1874..	200	00
Connington, Thomas.....	Louisburg Range Lights.....	Oct.	26, 1897..	200	00
Crowell, John.....	Seal Island Light and Fog Alarm.	"	14, 1899..	800	00
Campbell, J. O.....	Port Mouton...	April	29, 1898..	300	00
Campbell, S. C.....	St. Paul Island Fog Alarm...	June	23, 1905..	500	00
Comeau, Louis C.....	Meteghan River	Oct.	12, 1875..	100	00
Campbell, John P.....	Red Islands, B.C..	Nov.	30, 1901..	120	00
Croucher, George A.....	Croucher Island.....	Jan.	31, 1883..	300	00
Clough, Daniel.....	Grand Digue Pole Light.	July	4, 1884..	60	00
Clory, Abraham.....	Glasgow Point.....	"	25, 1894..	150	00
Coolen, Albert S.....	Hubbard Cove....	Oct.	31, 1903..	250	00
Cameron, L. G....	Beaver Harbour.....	Feb.	15, 1902..	150	00
Christian, P. E....	Betty Island.....	June	29, 1904..	500	00
Creelman, Samuel..	Port au Pique.....	May	2, 1901..	25	00
Campbell, D. A....	Louisburg Fog Alarm.....	Mar.	20, 1902..	920	00
Cunningham, A. H....	Cape Sable Light and Fog Alarm.	July	16, 1902..	800	00
Cohoon, Havelock....	Cranbury Island Light and Fog Alarm.....	Sept.	7, 1903..	800	00
Corbett, George....	Port Larue...	May	31, 1904..	260	00
Clark, F. R.....	Borden Wharf..	April	29, 1904..	100	00
Chisholm, John B.....	McMillans Point..	Dec.	2, 1905..	150	00
Church, W. R.....	Wedge Island..	Mar.	27, 1907..	400	00
Doane, T. S.....	Yarmouth or Cape Forchu Light & Fog Alarm..	Dec.	31, 1904..	800	00
Doyle, Edward.....	Mabou Front Range Light.....	June	14, 1897..	70	00
D'Entremont, W. H.....	Abbot Harbour.....	May	22, 1888..	90	00
Dewis, F. H. P.....	Cap d'Or Fog Alarm.....	April	13, 1898..	800	00
Duann, Wm. A.....	Green Island, Richmond.....	May	20, 1902..	500	00
Dunn, Miles A.....	Margaree Harbour, Outer Range Light.....	"	12, 1903..	50	00
Doane, F. H.....	Bunker Island.....	July	27, 1904..	350	00
Davison, Geo. E.....	Noel.....	April	25, 1906..	100	00
Delory.....	West Arichat.....	"	15, 1907..	100	00
Ellis, Wm. E....	Point Prim or Digby Gut, L. H. & F. W.....	Mar.	8, 1875..	800	00
Earley, John.....	Margaretsville.....	Feb.	19, 1887..	230	00
Elderkin, H. E....	Apple River Light and Fog Alarm.....	Mar.	31, 1905..	700	00
Elker, W. E.....	Queensport.....	Aug.	13, 1906..	300	00
Fraser, Alexr.....	Great Bras d'Or Range, Back Light.....	Jan.	13, 1903..	100	00
Fulker, Wm. G....	Devil Island.....	May	3, 1886..	420	00
Firth, Charles M....	Coffin Island, Liverpool.....	June	30, 1880..	400	00
Foster, Israel C....	Port Medway.....	Oct.	13, 1892..	260	00
Foster, Samuel T...	Port Medway Breakwater.....	Feb.	17, 1899..	100	00
Foster, Geo. M.....	Port George.....	Nov.	19, 1897..	100	00
Faulkner, W. Y....	Burnt Coat.....	June	22, 1898..	250	00
Findlay, John H....	Bull Point, Sambro Harbour.....	Dec.	7, 1899..	100	00
Franklin, J. L....	Wolfville.....	April	4, 1902..	100	00
Falconer, David...	Caribou Island.....	Dec.	20, 1902..	300	00
Finlayson, A. Wm....	St. Esprit Island.....	April	12, 1905..	400	00
Frederick, John...	Jordan Bay, Breakwater.....	Dec.	19, 1906..	100	00
Gillis Duncan.....	Point Tupper.....	April	1, 1906..	300	00

Allowance \$35 per month for assistance.

SESSIONAL PAPER No. 21

STATEMENT giving Names and Stations of Light-keepers, &c.—*Continued.*

NOVA SCOTIA—*Continued.*

Name.	Station.	Appointed.	Salary.	
			\$	cts.
Gilkie, Henry A.....	Sambro Light and Explosive Signal Station.....	Jan. 8, 1867..	800	00
Giffin, Ira L.....	Isaac Harbour.....	April 28, 1894..	200	00
Gardner, Frederic T.....	Brooklyn Pier Pole Light.....	Feb. 6, 1885..	100	00
Gallant, Patrick.....	Little Loraine.....	Jan. 19, 1900..	80	00
Goodwin, Jas. E.....	Wood Harbour.....	Aug. 27, 1900..	200	00
Garrison, S. H.....	Peggy Point.....	Dec. 22, 1902..	350	00
Gray, Peter Angus.....	Pennant Harbour.....	June 30, 1903..	100	00
Gerrion, Michael.....	West Arichat.....	1906..	100	00
Greenwood, Angus.....	Bon Portage.....	Jan. 14, 1907..	350	00
Harpell, Jeremiah.....	Jeddore Harbour Range.....	Jan. 21, 1901..	200	00
Huntley, Charles H.....	Kingsport.....	June 30, 1890..	100	00
Hawley, Mathew.....	South Bay, Ingonish.....	May 13, 1897..	140	00
Hardy, John.....	Gabarus.....	Nov. 22, 1890..	200	00
Hardy, Jos. W.....	Guion Island.....	Jan. 30, 1903..	400	00
Hinds, James.....	Victoria Beach.....	Mar. 7, 1901..	100	00
Hemlow, James S.....	Liscomb.....	Jan. 2, 1903..	300	00
Hunt, Wm.....	Bear River.....	April 10, 1905..	150	00
Hanlon, James P.....	Cranberry Island Light and Fog Alarm.....		800	00
Holland, Richard.....	Chibucto Head Light and Fog Alarm.....	Oct. 1, 1906..	800	00
Ice-ton, Wm.....	Mauger Beach Light and Fog Alarm.....	July 8, 1903..	800	00
Joyce, Simon.....	Seal Island, Lennox Passage.....	July 4, 1884..	150	00
Jamieson, Chas.....	Cape St. Lawrence.....	Sept. 21, 1893..	400	00
Jamieson, Geo. C.....	Cole Harbour Range.....	Oct. 21, 1898..	150	00
Kent, J. H.....	Musquodoboit Harbour Range Front Light.....	April 29, 1904..	125	00
Kent, John.....	Musquodoboit Harbour, Back Light.....	" 29, 1904..	100	00
Long, Joseph.....	Canso Harbour.....	Dec. 31, 1896..	250	00
Long, Joseph.....	False Passage Ledge.....	Aug. 4, 1903..	50	00
Leblanc, Severin.....	Tusket River.....	July 1, 1889..	250	00
Lowden, David.....	Pictou Harbour Range.....	" 12, 1897..	150	00
LaVashe, Wm.....	Arichat.....	Oct. 17, 1898..	250	00
Lyons, John H.....	Barrington East Bay Light Ship.....	June 18, 1897..	600	00
Landry, Edward.....	Petit de Grat.....	Feb. 23, 1897..	200	00
Larkin, Ephraim.....	Stoddart Island.....	Mar. 18, 1896..	200	00
Leblanc, Benjamin.....	Candle Box Island.....	Nov. 1, 1892..	300	00
Larkin, N. C.....	Lurcher Shoal Light-ship.....	" —, 1904..	†1,200	00
Leblanc, S. B.....	Grand Etang.....	Mar. 25, 1905..	60	00
Lynch, M.....	McNab Island.....	June 23, 1905..	300	00
Lewis, A. J.....	Sydney Range Back Light.....	May 22, 1905..	150	00
Murphy.....	Cape Race.....		40	00
Morash, Edward.....	Dover Harbour.....	Oct. 1, 1906..	200	00
Morel, B. H.....	Brier Island, Fog whistle.....	June 6, 1901..	400	00
Morrison, M. D.....	Black Rock Point.....	" 8, 1892..	250	00
Muise, Marcelin.....	Cheticamp.....	Nov. 27, 1896..	300	00
Misener, John E.....	Fort Point.....	May 16, 1896..	150	00
Moser, Samuel.....	Moser Island.....	Nov. 6, 1885..	350	00
Mullins, James.....	Mullins point.....	June 8, 1892..	200	00
Munro, William.....	Pictou Bar.....	Nov. 22, 1890..	460	00
Murphy, Michael.....	Pomquet Island.....	Dec. 18, 1890..	350	00
Mundell, Edward.....	Eddy Point.....	July 28, 1903..	400	00
Martell, John T.....	Scatterie Light and Fog Whistle.....	" 30, 1897..	800	00
Murray, John.....	Cape George, Great Bras d'Or Lake.....	Nov. 3, 1882..	200	00
Munroe, William L.....	Tree Top Island.....	Oct. 28, 1879..	325	00
Mitchell, John W.....	Jeddore Rock.....	Sept. 29, 1882..	400	00
Mitchell, Wm. A.....	Quaker Island.....	Feb. 19, 1896..	300	00
Matheson, Murdock.....	Whycocomah Pole Light.....	Sept. 11, 1884..	60	00
Morrison, Mrs. L.....	Freestone Islet Pole Light.....	June 5, 1897..	150	00
Mauger, John J.....	Cape LaRonde.....	Nov. 16, 1898..	300	00
Melanson, J. W.....	Gilbert Point.....	Aug. 18, 1894..	300	00
Morris, P. E.....	Isle Haute.....	" 2, 1904..	500	00
Morris, John H.....	Advocate Harbour.....	" 10, 1904..	250	00
Myrick, John.....	Cape Race, Newfoundland, L. H. & F. W.....	Nov. 1, 1897..	1,000	00
Mathews, Wm. J.....	Canso Range.....	Dec. 17, 1904..	200	00
Martin, Charles.....	Catch Harbour.....	May 19, 1905..	80	00
McDonald, Robert.....	Carter Island.....	Jan. 4, 1886..	275	00
McRae, J. A.....	Margaree or Sea Wolf Island.....	Feb. 28, 1907..	400	00
McLellan, Rod'k.....	Margaree Harbour, Inner Range.....	June 8, 1901..	50	00
McKay, R.....	North Canso.....	Feb. 4, 1882..	350	00
McFarlane, Andrew.....	Pictou Island.....	June 8, 1892..	400	00
McDonald, John A.....	Port Hood.....	May 10, 1880..	280	00

†Crew paid by Department.

STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

NOVA SCOTIA—Continued.

Name.	Station.	Appointed.		Salary.	
				\$	cts.
McLean, H.....	Gillis Point.....	Dec.	18, 1897..	150	00
McRae, Hector.....	McKenzie Point, Great Bras d'Or.....	Aug.	20, 1890..	160	00
McLeod, Norman.....	Cape North, Money Point.....	Oct.	14, 1899..	400	00
McNeil, F. X. S.....	Iona.....	Nov.	16, 1901..	120	00
McRae, Donald.....	Kidston Island.....	May	17, 1892..	200	00
McDonald, Norman.....	Gooseberry Island or Marjorie Isle.....	July	4, 1884..	100	00
McAskill, Kenneth.....	Jerome Point.....	"	30, 1901..	250	00
McNeil, John C.....	Piper Cove.....	Dec.	18, 1897..	120	00
McNeil, Laughlin.....	McNeil Beach, Great Bras d'Or.....	Aug.	6, 1884..	60	00
McFadyen, Malcolm.....	Mabou Back Range Light.....	April	17, 1891..	50	00
McDonald, John A.....	Campbell Island, Victoria Co.....	Feb.	16, 1907..	100	00
McEachern, A. L.....	Cape George.....	Sept.	8, 1898..	450	00
McLeod, Murdoch.....	Pugwash.....	Dec.	10, 1897..	300	00
McKenna, John L.....	Cape Roseway, Light and Fog Alarm.....	Mar.	31, 1899..	800	00
McDonald, Rod.....	Clarke Cove.....	April	2, 1904..	100	00
McLellan, Baxter.....	Spencer Island.....	July	21, 1904..	100	00
McLellan, Ingersoll L.....	Economy Pole Light.....	May	16, 1899..	*6	00
McAdam, Hugh R.....	Arisaig.....	Nov.	14, 1898..	100	00
McKay, Hector G.....	Bird Island.....	May	21, 1901..	450	00
McLean, Malcolm.....	Great Bras d'Or Range, Front Light.....	Jan.	13, 1903..	100	00
McLennan, John.....	Henry Island.....	July	21, 1903..	400	00
Mackenzie, John.....	South-west Point, St. Paul Island.....	Nov.	16, 1904..	400	00
McCarthy, D. A.....	Sheet Rock.....	Jan.	1, 1906..	500	00
McLeod, M. J.....	St. Paul's Island Fog Alarm.....	July	10, 1906..	500	00
Nass, Henry.....	Battery Point.....	Mar.	12, 1897..	300	00
Nickerson, Byron.....	Negro Island.....	July	26, 1897..	300	00
Nunn, George.....	Sydney South Bar.....	June	20, 1872..	300	00
Nicholson, Alex.....	St. Ann Harbour.....	"	5, 1905..	140	00
O'Hanley, C. F.....	Yarmouth Channel Light.....	May	6, 1906..	200	00
O'Leary, Wm. E.....	Beaver Island.....	Feb.	22, 1900..	400	00
O'Hara, Theodore.....	Port Bickerton.....	Jan.	26, 1901..	150	00
Orchard, L. D.....	Rugged Island Harbour, Gull Rock.....	"	1, 1877..	400	00
O'Neil, Thos.....	Low Point Fog Alarm.....	May	2, 1904..	500	00
O'Brien, Michael.....	Bear Island.....	Dec.	7, 1906..	300	00
Powell, A. M.....	Page Island.....	Dec.	5, 1905..	200	00
Paysant, Jason.....	Little Hope Island.....	Oct.	22, 1901..	500	00
Pearl, Albert.....	Green Island off Margaret's Bay.....	Dec.	29, 1873..	500	00
Prince, Philip.....	Louisburg Light.....	Nov.	8, 1897..	350	00
Peters John G.....	Low Point Light.....	Oct.	1, 1865..	460	00
Pettis, Wm.....	Parrsboro'.....	Dec.	6, 1888..	340	00
Palmer, Howard.....	Wolfe Point.....	Oct.	14, 1899..	250	00
Palmer, H. W.....	Lahave, Fort Point.....	May	22, 1878..	200	00
Perry, Levi.....	North East Harbour Range.....	June	17, 1899..	250	00
Peters, John N.....	Brier Island Light.....	"	6, 1901..	400	00
Pope, John.....	Main-à-Dieu.....	Sept.	11, 1902..	300	00
Patterson, Wm.....	Dartmouth.....	June	3, 1903..	100	00
Patterson, C. D.....	West End of Pictou Island.....	Mar.	29, 1905..	400	00
Pride, Freeman.....	Budget, St. Mary's River.....	Dec.	7, 1905..	200	00
Patterson, Clifford.....	Shulee Harbour.....	Oct.	26, 1905..	200	00
Robinson, Charles.....	Black Rock.....	Mar.	16, 1885..	330	00
Ruggles, Frank.....	Boars Head.....	May	24, 1901..	350	00
Robicheau, B. H.....	Cape St. Mary.....	July	5, 1886..	350	00
Rathburn, Mrs. S. M.....	Horton Bluff.....	Sept.	3, 1879..	250	00
Ross, Robert.....	George Island Light and Fog Bell.....	Jan.	18, 1876..	250	00
Roblee, Jacob V.....	Shafner Point.....	May	29, 1897..	150	00
Riley, Simon W.....	Annapolis.....	Mar.	7, 1892..	100	00
Richards, Stephen C.....	Charlo Harbour Range.....	Nov.	4, 1901..	120	00
Ross, Alex. W.....	Little Narrows.....	May	23, 1902..	120	00
Rogers, Lloyd.....	Amet Island.....	Nov.	11, 1902..	450	00
Rose, John.....	N. E. Point St. Paul Island.....	July	17, 1897..	400	00
Roney, Henry.....	Granville Centre.....	Feb.	24, 1904..	75	00
Rudderham, S.....	Sydney Range Front Light.....	Jan.	15, 1905..	250	00
Schoville, J. H.....	Yarmouth.....	Jan.	9, 1907..	200	00
Smith, Wm. L.....	Baccaro.....	May	8, 1907..	450	00
Smith, Eph.....	Sambro Inner Island Pole Light.....	Jan.	3, 1900..	100	00
Scott, M. C.....	Guysborough Harbour.....	April	19, 1884..	220	00
Spencer, Robt. A.....	Spencer Point.....	"	1, 1870..	125	00
Suthern, Edward W.....	Westport.....	"	12, 1890..	350	00
Saulnier, John H.....	Church Point, St. Mary Bay.....	Aug.	8, 1878..	200	00
Strum, James A.....	Westhaver Island.....	Sept.	25, 1888..	200	00

*Per month during season of navigation.

SESSIONAL PAPER No. 21

STATEMENT giving Names and Stations of Light-keepers, &c.—*Continued.*

NOVA SCOTIA—*Concluded.*

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Sallows, A. J.....	Port Maitland or Green Cove Pole Light.....	Dec.	28, 1900..	200	00
Sampson, Theodore.....	Beaver Island.....	Oct.	13, 1892..	80	00
Smith, Caleb.....	Salter Head Beacon Light.....	June	21, 1888..	60	00
Smith, Wm. B.....	Westhead, Cape Sable Island.....	April	12, 1890..	200	00
Smeltzer, John D.....	Hobson Island.....	April	10, 1900..	300	00
Stephens, James Gordon.....	Sand Spit, Shelburne Harbour.....	Mar.	11, 1903..	280	00
Slaunwhite, S. P.....	Terence Bay.....	Oct.	13, 1903..	100	00
Stewart, Sargent.....	Little Dyke.....	May	1, 1906..	25	00
Stoddard, James S.....	Egg Island.....	May	6, 1907..	400	00
Theriault, D.....	Jerseyman Island.....	May	31, 1905..	300	00
Troop, Ralph.....	Troops Point.....	Jan.	23, 1906..	100	00
Vance, Geo. W.....	Masstown or Debert.....	June	29, 1898..	25	00
Wolfe, Howard M.....	West Ironbound Island.....	June	22, 1895..	250	00
Wells, Jas.....	Whitehead Island.....	Oct.	20, 1897..	510	00
Wambold, Jas.....	Sheet Harbour Passage.....	May	11, 1887..	50	00
Webb, Patrick.....	Harbour au Bouche.....	Feb.	19, 1896..	250	00
Webber, Jas. M.....	Torbay.....	May	10, 1898..	300	00
Wynacht, W. H.....	Cross Island Light and Fog Whistle.....	April	13, 1898..	800	00
Warren, R. V.....	Ingonish Island.....	Sept.	17, 1903..	360	00
Walsh, John.....	Lingan Head.....	July	14, 1904..	200	00
Young, Uriah.....	Chester, or East Ironbound Island.....	Feb.	15, 1884..	400	00
Yorke, Freeman.....	Cape Sharpe Light and Fog Alarm.....	June	30, 1902..	750	00

PRINCE EDWARD ISLAND.

Anderson, Albert.....	St. Peters Range.....	July	25, 1900..	130	00
Allen Joel S.....	Indian Point Pier.....	May	18, 1898..	375	00
Beaton, Angus S.....	Hazard Point Range, Black Light.....	Nov.	21, 1902..	60	00
Bell, Wm.....	Tryon Head.....	Mar.	17, 1905..	200	00
Clarke, Jesse George.....	Georgetown Range, Back Light.....	Aug.	14, 1901..	150	00
Champion, Wm.....	Alberton Range Lights.....	Oct.	25, 1897..	100	00
Connors, George.....	Georgetown, St. Andrew's Point.....	June	3, 1901..	150	00
Costain, Elijah.....	Miminegash Range, Back Light.....	May	18, 1906..	40	00
Fraser, John.....	Summerside Range, Front Light.....	April	12, 1897..	100	00
Gallup, J. W.....	Balfour.....	Dec.	7, 1906..	120	00
Gaudet, Agape.....	Big Tignish Range.....	Aug.	30, 1897..	130	00
Gillis, Donald.....	Point Prim.....	Dec.	10, 1897..	300	00
Gallant, Jos. J. D.....	Cape Egmont.....	Oct.	21, 1902..	200	00
Gould, Patk.....	Fish Island.....	Dec.	7, 1906..	120	00
Hardy, Wm.....	Little Channel Range.....	July	26, 1875..	100	00
Howatt, Abner J.....	Leards Range, Outer Light, Crapaud.....	"	22, 1893..	100	00
Inman, James.....	Leards Range, Inner Light, Crapaud.....	Aug.	13, 1901..	100	00
Jordan, M. L.....	Cape Bear.....	April	12, 1905..	375	00
Kielly, John Andrew.....	Cove Head Lights.....	Nov.	27, 1890..	90	00
Lewis, James.....	Brighton Beach Range.....	Mar.	1, 1899..	100	00
Lavie, J. D.....	Souris, East Lights.....	June	23, 1905..	300	00
Lavie, Capt. J. D.....	Souris East.....	June	23, 1905..	300	00
Morrison, John D.....	Cardigan River.....	Aug.	15, 1901..	100	00
McKela, Austin.....	Grame Point.....	Jan.	20, 1906..	500	00
McDonald, John W.....	Tracadie.....	May	24, 1901..	100	00
McRae, Daniel.....	Hazard Point Range, Front Light.....	April	6, 1900..	70	00
McDonald, Lauchlin.....	East Point and Fog Whistle.....	Jan.	18, 1901..	600	00
McDonald, John.....	Douse Point Range, Orvell.....	June	25, 1879..	70	00
McLeod, Jas. H.....	New London.....	Jan.	29, 1896..	125	00
McDonald, Wm.....	West Point.....	Aug.	22, 1876..	300	00
McKay, Rodk. W.....	Wood Island.....	April	1, 1899..	250	00
McDonald, Jas. A.....	Savage Harbour Range.....	July	11, 1889..	100	00
McLeod, Lemuel.....	Murray Harbour, Front Light.....	Dec.	21, 1897..	50	00
McPherson, Daniel W.....	Brush Wharf Range, Orwell.....	Jan.	13, 1899..	60	00

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STATEMENT giving Names and Stations of Light-keepers, &c.—Continued.

PRINCE EDWARD ISLAND—Concluded.

Name.	Station.	Appointed.	Salary.
			\$ cts.
McNeil, Alex. S.....	Block House Point, Charlottetown.....	Mar. 25, 1901..	340 00
McNeil, A. S.....	Warren Farm.....	May 16, 1907..	100 00
O'Brien, Patrick.....	Miminegash Range, Front Light.....	May 14, 1897..	60 00
O'Ranaghan, Peter.....	Sea Cow Head.....	April 21, 1873..	250 00
Phee, James.....	North Point.....	Sept. 4, 1897..	300 00
Penny, Robert.....	Murray Harbour, Back Light.....	Nov. 11, 1897..	50 00
Pino, Joseph N.....	North or Grand Range, Rustico.....	Feb. 6, 1897..	125 00
Robertson, Alfred.....	Annandale Range.....	Oct. 5, 1898..	100 00
Stavart, Geo.....	Summerside Range, Back Light.....	Sept. 8, 1895..	80 00
Steele, Colin.....	Panmure Head.....	June 3, 1901..	250 00
Thulin, C. A.....	Lund Light.....	May 3, 1907..	240 00
Tuplin, Jas. C.....	Sandy Island, Cascumpec.....	May 5, 1897..	300 00
Taylor, Chas.....	Dranley Point, Range Lights.....	June 14, 1897..	60 00
Taylor, Jas. W.....	St. Peters Island.....	May 1, 1897..	200 00
Wiggins, G. W. J.....	Daruley Point, Range.....	Oct. 16, 1896..	125 00
Wright, Chas. L.....	Wright Range, Crapaud Harbour.....	June 14, 1894..	100 00
Westaway, John.....	Georgetown Wharf.....	Jan. 16, 1906..	100 00
Young James.....	Wood Island Harbour.....	Nov. 14, 1902..	80 00

BRITISH COLUMBIA.

Allison, P.....	Portier Pass.....	Nov. 12, 1902..	*30 00
Allan, R.....	Crofton Light.....	May 31, 1907..	80 00
Brown, Wm. Henry.....	Ballinae Island.....	Oct. 3, 1901..	200 00
B. C. Electric Co.....	Laurel Point.....	—, —, —	55 00
B. C. Electric R. R. Co.....	Brotchy Ledge.....	—, —, 1903..	200 00
Blanchard, B.....	The Sisters, Light and Fog Alarm.....	Feb. 20, 1905..	600 00
Carpenter, C.....	Dryad Point.....	Nov. 7, 1899..	†300 00
Crozier, James.....	Bare Point, Chemainus.....	June 12, 1897..	168 00
Clarke, M. G.....	Entrance Island, Light and Fog Whistle.....	Nov. 26, 1897..	900 00
Codville, James.....	Pointer Island.....	Dec. 26, 1899..	360 00
Croft, M. A.....	Discovery Island, Light and Fog Whistle.....	April 1, 1902..	900 00
	Gallows Point and Middle Ground Beacons, Nanaimo Harbour.....		120 00
Daykin, William P.....	Carmanah Point, Light and Fog Whistle.....	Nov. 4, 1890..	1,200 00
Davidson, John.....	Cape Mudge.....	June 27, 1898..	420 00
Davies, J. Wm.....	Scarlet Point.....	May 2, 1905..	1,200 00
Doney, John.....	Yellow Island.....	Nov. 1, 1905..	500 00
Davies, James.....	Egg Island.....	Mar. 6, 1906..	1,200 00
Eastwood, F. M.....	Race Rocks, Lights and Fog Whistle.....	Jan. 31, 1891..	1,200 00
Erwin, Walter.....	Point Atkinson, Light and Fog Whistle.....	Oct. 5, 1880..	1,000 00
Elsternan, F. W.....	Lawyer Island.....	April 1, 1905..	600 00
Ellis, A.....	Kyuquot Light.....		240 00
Franklin, Wm. Thos.....	Merry Island.....	Jan. 8, 1904..	360 00
Grant, G. W.....	Amphitrite.....	April 2, 1906..	250 00
Georgeson, Henry.....	Active Pass, Light and Fog Whistle.....	July 21, 1884..	900 00
Georgeson, James.....	Saturna Island, East Point.....	Oct. 26, 1889..	550 00
Grove, John.....	Prospect Point.....		300 00
Gallup, J. W.....	Proctor.....	Jan. 1, 1900..	240 00
Georgeson, John.....	Walker Rock.....		240 00
Garrard, F. C.....	Lennard Island.....	Nov. 1, 1904..	460 00
Gillespie, W.....	Portlock Point.....	—, 1905..	460 00
Godtel, A.....	Sooke Light.....	April 1, 1907..	120 00
Gurney, A. B.....	Pine Island.....	" 1, 1907..	700 00
Harrap, R.....	Coffin Islet and Danger Reef.....	April 15, 1903..	300 00
Harrison, S. G.....	Berens Island.....	Nov. 4, 1897..	†300 00
Hayllar, T. C.....	Pine Island.....		500 00
Hukkala, B.....	Pultney Point.....	Temporary.....	500 00

* Per month.
† Allowance, \$600 per annum for mail service.

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STATEMENT giving Names and Stations of Light-keepers, &c.—*Continued.*

BRITISH COLUMBIA—*Concluded.*

Name.	Station.	Appointed.		Salary.	
				\$	cts.
Jones, William D.....	Brocton Point, Burrard Inlet.....	Aug.	20, 1890..	300	00
Johnson, Capt. George.....	Fisgard.....	July	30, 1901..	500	00
Jackson, G. H.....	Janotsina.....			300	00
Kootenay Electric Light Co...	Kaslo.....	Dec.	1, 1897..	240	00
Kernode, Thos.....	Sechart Light.....	May	31, 1907..	240	00
Lindblow, L.....	Lucy Island.....			600	00
Moore, Hugh.....	Dock Island.....	May	15, 1903..	*20	00
McColl, S. W.....	Garry Point.....	July	24, 1898..	*10	00
McElroy, O.....	Pilot Bay.....	May	2, 1905..	360	00
McNeil, D. H.....	Fiddle Reef.....	Mar.	21, 1905..	400	00
McMillan, J. F.....	North Arm Fraser River.....	"	29, 1905..	240	00
McDonald, J.....	Trial Island.....			450	00
McMillan, Jno. A.....	Denmans Island.....	Aug.	15, 1906..	400	00
McMillan, F. A.....	Plover Point.....			180	00
Nelson, T.....	Scarlett Point.....	Mar.	6, 1906..	450	00
O'Brien, Michael.....	Sand Head Lightship.....	Oct.	1, 1904..	1,200	00
Patterson, Thomas.....	Cape Beale.....	Mar.	2, 1895..	1,200	00
Parker, A. A.....	Fraser River Lights.....	July	1, 1907..	300	00
Reuter, F.....	Ivory Island.....	May	2, 1905..	500	00
Rudge, C.....	Birnie Island.....	"	2, 1905..	240	00
Richardson, J. S.....	Pashena Point.....	Sept.	1, 1907..	700	00
Sparks, T.....	Shoal Point and Middle Rock, Victoria Harbour	Jan.	29, 1903..	180	00
Sparks, —.....	Brochy Ledge.....			120	00
Thulin, C. A.....	Lund Light.....	May	3, 1907..	240	00
Western Fuel Co.....	Gallows Point.....	May	—, 1906..	120	00
Whitaker, H.....	Sechelt.....	Oct.	19, 1904..	240	00

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA.

APPENDIX

LIFE Saving Stations maintained

Number.	Stations.	Established.	Coxswain.	Crew.	Coxswain's Salary. Per annum.	Pay of Crew.
<i>Bay of Funday—</i>						
1	Seal Cove.....	1898	F. Benson..	7	75	\$2.00 per drill, and extra when engaged saving life.
2	Yarmouth.....	1886	A. Cain.....	7	75	" ..
3	Mud Island.....	1887	I. Pitman.....		80	.....
4	Seal Island.....	1880	H. Hitchens.....	7	250	\$100 each of crew per annum ..
<i>Atlantic Coast—</i>						
5	Clark's Harbour.....	1900	Thomas N. Nickerson.	7	75	\$2.00 per drill, and extra when saving life.
6	Blanche.....	1889	W. A. B. Smith ..	7	75	" ..
7	Port Mouton.....	1889	Walter Cook.....	7	75	" ..
8	Duncan's Cove.....	1886	J. W. Holland....	7	75	" ..
9	Herring Cove.....	1885	J. Gorman.....	7	75	" ..
10	Devil's Island.....	1885	Benj. H Henneberry.	7	75	\$2.00 per drill, and extra when saving life.
11	White Head.....	1890	H. P. Munroe....	6	75	" ..
12	Sable Island.....	1885	G. Soderberg .. J. Ritcey.....		250 250	Paid as island staff.....
13	Scatterie Island.....	1885	F. Martell.....	7	75	\$2.00 per drill, and extra when saving life.
<i>Gulf of St. Lawrence —</i>						
14	St. Paul's Island.....	1885	Supt. Humane Establishment..	3		\$300 each per annum.....
15	Pictou Island.....	1889	Alex. Currie.....	7	75	\$2.00 per drill, and extra when saving life.
	Cape Tormentine.....	1893	No organized crew.			.....
<i>Great Lakes—</i>						
16	Wellington.....	1883	"			\$2.00 per drill, and extra when saving life.
17	Consecon.....	1898	W. A. Young.....	7	75	" ..
18	Cobourg.....	1882	D. Rooney.....	7	75	" ..
18	Port Hope.....	1889	W. T. Clarke.....	7	75	" ..
19	Toronto Island.....	1883	Wm. Ward.....	7	75	" ..
21	Long Point.....	1902	Geo. Wisner.....	*7	†75 & 40	\$2.00 per drill, and \$40 per month for three months.
22	Port Stanley.....	1885	Wm. Berry.....	7 ²	75	\$2.00 per drill, and extra when saving life.
23	Point Pelee.....	1900	W. A. Grubb, jr. .	7	75	" ..
24	Goderich.....	1886	J. R. Craigie.....	7	75	" ..
25	Collingwood.....	1885	P. Doherty.....	7	75	" ..
26	Kincardine..	1903	Thos. McGaw!....	7	75	" ..

* Crew at station permanantly for three months during autumn. † \$75 and \$40 per month for three

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No. 21.
by the Dominion Government.

Description of Boat.	Cost.	Where Built.	Equipment.	Remarks.
	\$			
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Shelburne, N.S...	Full regulation.	Iron rails laid in 1900.
Dobbin's pattern, self-bailing and self-righting, 25 feet long.	575	Dartmouth, N.S..	"	
Fishing-boats and dories	80 pr. an.	.....	Ordinary.....	Kept by contract with fishermen.
Beebe-McLellan boat on east side.	240	Shelburne a n d	Full regulation.	New boat, 1903
" " west " ..		Halifax, N.S.		
Beebe-McLellan, self-bailing, 25 feet long, low ends.	250	" ..	" ..	Boat house and gear cost \$700.
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Dartmouth, N.S. .	" ..	New boat in 1901.
Dobbin's pattern, self-righting and bailing, 25 feet long.	575	" ..	" ..	
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Shelburne, N.S....	" ..	Lyle gun established here in 1900; new boat, 1903.
" " ..	250	" ..	" ..	
Dobbin's pattern, " ..	575	Dartmouth, N.S. .	" ..	Lyle gun.
Two Dobbin's self-righting andbailing boats and one Beebe-McLellan surf-boat, self-bailing.	1,100	Halifax, N.S.....	" ..	Lyle gun and rocket apparatus kept here. Coxswains are under the control of Superintendent of Humane Establishment.
Beebe-McLellan surf-boat,self-bailing, 25 feet long.	250	Shelburne, N.S....	" ..	New boat, 1903.
Beebe-McLellan self-bailing, 25 feet long, low ends..	250	" ..	Full equipment.	Lyle gun added in 1900.
Dobbin's pattern, self-righting and bailing, 25 feet long.	575	Dartmouth, N.S. .	" ..	
Boats of winter mail service.....		.....	Ordinary...	
Dobbin's pattern. self-righting and bailing.	750	Buffalo, N.Y.....	Full equipment.	Removed from Poplar Point in 1900.
" " ..	750	" ..	" ..	Removed from Wellington in 1893.
" " ..	575	Goderich, Ont....	" ..	
" " ..	620	" ..	" ..	
" " ..	600	" ..	" ..	New boat, 1895.
Surf-boat.....	330	Collingwood.....	" ..	New station and new boat 1902.
Beebe-McLellan surf-boat,self-bailing, 25 feet long.	350	" ..	" ..	
Surf-boat.....	330	" ..	" ..	Boat house removed from Point up 200 yards and tramway built.
" ..	330	" ..	" ..	New boat ,1902.
Beebe-McLellan self-bailing surf-boat.	375	" ..	" ..	New boat, 1896.
" " ..	350	" ..	" ..	New boat, 1903.

months while permanently at station.

APPENDIX No. 22.

MARINE SCHOOLS.

Lt.-Col. F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa, Can.

SIR,—I have the honour to herewith submit a statement of attendance at the lectures upon marine subjects, which were given at the following places :—Lunenburg, Yarmouth, North Sydney, N.S., St. John, N.B., Quebec, Montreal, P.Q., Kingston, Toronto, Collingwood, Ont., and Victoria, B.C.

The schedule of subjects, which the lectures followed, was similar to that of previous years, which comprises all the elementary parts of a sailor's education. By special request from advanced students, lectures on astronomy were given at Yarmouth N.S.

Lectures were given every Tuesday and Friday, beginning the first week in December, 1906, and during the months of January, February and March, 1907, in all, thirty-two evenings were devoted to the elucidation of subjects pertaining to seamanship.

Many evenings were devoted especially to the thorough explanation of the rule of the road and upon the correction of the compass. Models and a deviascope have been supplied to every school to demonstrate, in a practical manner, the effect of iron on compasses.

It is necessary that the above two subjects be thoroughly mastered by our seamen navigating our lakes and rivers. The shipping community, the interested public and the press have eulogized the government for the institution of those lectures, especially on the Great Lakes. It will be seen, by the statement, that the attendance, at Quebec, Toronto, Collingwood and Victoria, was all that could be desired and beyond the most sanguine expectations.

I have much regret in stating that the efforts of the department have not been appreciated in St. John and Montreal. I am absolutely at a loss to explain the reason why Montreal, especially, has had no attendance, as I know, from past experience, that there is a great number of navigators residing in that city, who would benefit greatly by attending and listening to the explanations which are given on the important subjects of their profession.

I have also to state that, during the season of 1905-6, the attendance, at Halifax, was not satisfactory, but I may suggest that, if a suitable man is found, another trial be made during the winter of 1907-8.

The lectures would prove more interesting, instructive and attractive, if each school was provided with a first-class and up to date lantern, whereby diagrams, and plans of the subject discussed could be thrown on a screen, it would facilitate materially the task of the lecturer, and explanations would be more comprehensive to the majority of the students.

Respectfully submitted,

L. A. DEMERS.

Supt. Govt. Marine Schools.

September 7, 1907.

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STATEMENT OF ATTENDANCE.

Schools.	No. of Lectures.	Max.	Min.	Average.	Total.	Remarks.
Halifax.....						No lectures, owing to death of examiner.
Lunenburg.....	25	18	2	8	199	
Yarmouth.....	28	11	2	7	211	
St. John.....	19	3	2		13	
North Sydney.....	30	8	3	6	127	
Quebec.....	27	26	3	16	427	
Montreal.....						No lectures given, only one attended.
Kingston.....						No available report.
Toronto.....	31	24	5	14	453	
Collingwood.....	21	47	11	27	575	
Victoria.....	30	12	4	8.2	246	
					2,251	

APPENDIX No. 23.

REPORT OF THE CHAIRMAN OF THE BOARD OF STEAMBOAT INSPECTION.

CHAIRMAN'S OFFICE,
OTTAWA, October, 1907.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit a report of the working of the steamboat inspection service for nine months of fiscal year ending March 31, 1907.

It defines the general work of the service during the time stated, giving the names and number of steamboats inspected and certificated in the several divisions, and their gross tonnage, with the amount of dues collected from steamers employed in the carriage of passengers between Canadian ports, but registered elsewhere than in Canada, together with the fees received for engineers' examinations, the names of the candidates, and their grade of certificate.

The steamboat inspectors of the port of Montreal, in addition to the steamboats inspected, have also inspected the ships' tackle and hoisting gear of 310 vessels, which is used for the purpose of loading and unloading them.

Number of steam vessels reported as known by the inspectors in the Dominion, for the nine months of fiscal year ending March 31, 1907.

Division.	Number of Dominion registered steamers.	Gross tonnage of Dominion registered steamers.	Number of steamers inspected but not registered in the Dominion.	Gross tonnage of steamers inspected but not registered in the Dominion.
Toronto.....	328	64,425	28	24,053
Collingwood.....	215	56,294	4	2,224
Kingston.....	158	26,371	11	1,693
Montreal.....	179	22,503	6	11,246
Sorel.....	80	31,301	nil.	.....
Quebec.....	114	19,859	1	1,170
Nova Scotia.....	148	29,458	14	23,931
New Brunswick and P. E. Island.....	170	22,029	7	9,812
British Columbia and Yukon Territory.....	215	49,070	12	12,815
Manitoba and Northwest Territories.....	160	11,834	nil.
Total.....	1,767	333,144	83	86,944

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Number of Dominion registered steam vessels inspected, and their gross tonnage, with amount of fees collected on account of steamboat inspection, during the nine months of fiscal year ending March 31, 1907.

Division.	Number of Dominion registered steamers inspected.	Gross tonnage of Dominion registered steamers inspected.	Amount of fees collected on account of steamboat inspection.
			\$ cts.
Toronto.....	160	21,204	138 40
Collingwood.....	81	8,417	nil.
Kingston.....	90	3,885	"
Montreal.....	43	4,245	"
Sorel.....	7	1,654	"
Quebec.....	25	2,955	130 00
Nova Scotia.....	66	9,009	1,070 80
New Brunswick and P. E. Island.....	76	7,017	nil.
British Columbia and Yukon Territory.....	31	2,432	504 96
Manitoba and Northwest Territories.....	21	2,432	
Engineers' Certificates.....			1,000 00
Total.....	610	63,350	\$2,844 16

BOARD MEETINGS.

August 22, 1906.—A meeting of the Board of Steamboat Inspection was convened at Victoria, B.C., for the examination of candidates for the position of hull inspector for that province, the result of which Mr. John C. Kinghorn demonstrated his fitness for the position and was appointed thereto by order in council of November 22, 1906.

CASUALTIES.

The following are the casualties reported from the several divisions as having occurred for the nine months ending March 31, 1907.

Toronto Division.

September 18, 1906.—The steamer *Gordon Jerry*, of Windsor, was totally destroyed by fire at Ward's island, Toronto harbour, cause of fire unknown.

November 22, 1906.—During a severe gale in the early morning, the steamer *Resolute*, of Desoronto, foundered. The steamer had been lying to anchor under Gibraltar point, outside the western entrance to Toronto harbour, waiting for the wind to moderate to enable her to enter the harbour. Suddenly the wind shifted and the steamer began to sink; she was abandoned and six of the crew reached shore in safety, while six were drowned.

On Thursday night, December 4, 1906, the steamer *Monarch*, of Sarnia, en route from Fort William to Sarnia, went ashore on Isle Royal, Lake Superior, during a snow storm and became a total loss; one of the crew was drowned.

On January 5, 1907, the tug *Skylark*, of Toronto, while on her way to Port Stanley from Port Colborne, in a dense fog ran ashore near Port Maitland and became a total loss. The boiler and machinery have been removed.

On December 6, 1906, the steamer *Golspie*, of Hamilton, when on a voyage from Fort William to Point Edward, with a cargo of grain, went ashore during the night at Brule bay, Lake Superior. The vessel was abandoned and became a total loss. The accident occurred during a snow storm, and at some distance from any settlement; owing to the inclemency of the weather and exposure, several of the crew were severely frost bitten before assistance was received, from the results of which one of them died at the hospital at Sault Ste. Marie, Ont.

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Collingwood Division.

September 2, 1906.—Steamer *Balize*, of Windsor, struck a rock at Little Detour passage, north channel, and sank in deep water; the officers and crew escaped in the yawl boat. She has since been raised and repaired.

November 22, 1906.—Steamer *J. H. Jones*, of Goderich, left Owen Sound during a heavy gale, bound for Lion's Head, and was last seen off Cape Croker at the close of darkness that evening. It is supposed the steamer foundered off Cape Croker, although the two life boats and other wreckage came ashore at Christian island. All the crew and passengers, amounting to about twenty-two persons, were lost.

Kingston Division.

On November 8, 1906, steamer *Strathmore*, of Cobourg, on voyage from Fort William to Kingston, went ashore on Michipicoten island during a snow storm, and became a total loss; there was no loss of life.

Steamer *Erinsdale*, of Whitby, on the morning of August 9, 1906, was destroyed by fire while lying at the wharf at Newcastle, becoming a total loss. No loss of life reported.

On July 22, 1906, steamer *Maple Leaf*, of Hamilton, while lying at the dock took on fire and became a total loss. There being no person on board at the time, cause of fire is unknown.

Steamer *Beaver*, of Port Hope, while in winter quarters at Lakefield, was completely destroyed by fire; cause of fire unknown.

Montreal Division.

On September 27, 1906, the steamer *Maude*, of Montreal, collided with the steamer *Ottawan*, of Ottawa, at midnight, on the Ottawa river near Hudson, and sank in about twenty feet of water. The *Ottawan* sustained very little damage, and stood by to take the passengers and crew on board; two of the crew and one passenger were drowned. Part of the machinery was taken out of the *Maude*, and the hull was hauled out of the channel and abandoned.

On October 8, 1906, the steam barge *A. M. Marshall* collided with dredge No. 1 in the harbour of Montreal. She was proceeding down stream and tried to pass on the south side, but failed to do so, striking the dredge and sinking her in about thirty feet of water. Part of the machinery was removed and the hull drifted down to Hochelaga. The steam barge received very little damage.

Quebec Division.

On July 6, 1906, the passenger steamer *Gaspesien*, of Quebec, collided with a floating elevator in the harbour of Montreal, making a hole in her port side under the water line. She was beached to prevent her from sinking, and subsequently floated and placed in dock and repaired.

On September 6, 1906, the steamer *Heward McMaugh*, of St. Catharines, ran ashore on the Wye Rock, at St. Thomas, and sank. She is a total loss, no fatalities.

On October 12, 1906, the steamer *Polino* ran ashore at Goose island, when she was subsequently floated, brought to Quebec and repaired.

On November 15, 1906, the steamer *Sprag*, of Quebec, ran ashore at Madame island. She was floated on the 21st, and docked at Quebec for repairs.

Nova Scotia Division.

December 2, 1906.—The steamer *Maggie*, of Lunenburg, while lying at her wharf at Canso, N.S., caught fire, supposed to be from hot fire tools, and was totally destroyed, no lives lost.

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December 22, 1906, steamer *Strathcona*, of Halifax, when entering Port Dufferin, N.S., was discovered on fire over the boiler, and in a few minutes was totally destroyed; no loss of life occurred.

January 6, 1907, steamer *Yankee*, of Yarmouth, while entering Tusket harbour, N.S., struck a rock and became a total loss; no loss of life.

New Brunswick and Prince Edward Island Division.

August 7, 1906, the steamer *Admiral*, of St. John, N.B., while proceeding out of the Narrows during a thick fog, struck the rocks and damaged her bow, causing her to sink, she was subsequently raised and repaired.

September 1, 1906, steamer *Neptune*, of St. John, while lying at her wharf, caught fire at the midship portion of deck house, destroying wheel-house and engine-room. Cause of fire unknown; all damage was made good.

October 7, 1906, steamer *Elfin*, of Charlottetown, Prince Edward Island, while lying at her wharf at Charlottetown, P.E.I., caught fire, was very badly damaged, and condemned.

Manitoba and Northwest Territories Division.

On August 22, 1906, the steamer *Harvey Neelon*, of St. Catharines, while on a voyage from Port Arthur to Fort William caught fire around the boiler and became a total loss. Cause of fire unknown. No loss of life.

On August 25, 1906, the steamer *Princess*, of Winnipeg, 405 gross tons, while en route from Poplar point, Lake Winnipeg, to Selkirk, encountered a heavy storm and sprang a leak whereby she sank, becoming a total loss. The captain and five others were drowned.

British Columbia Division.

On July 21, 1906, steamer *Princess Victoria*, on a voyage from Vancouver to Victoria, when near Brockton point, Vancouver narrows, came into collision with steamer *Chehalis*, whereby the latter sank and became a total loss, nine persons lost their lives.

On October 16, 1906, steamer *Princess Victoria*, on a voyage from Vancouver to Victoria, struck and remained fast on Lewis rock, abreast of Oak bay, Victoria; was pulled off next day with rising tide, and hauled out on marine railway, damage about 100 feet of keel and garboard, and forty frames renewed and repaired.

On September 26, 1906, the steamer *Columbian*, when bound down the Yukon river from Whitehorse to Dawson, with a mixed cargo, including two tons of blasting powder, by some means the powder exploded, setting the boat on fire; she was promptly beached to save the crew, five of whom subsequently died from the burns received.

I am, sir,

Your obedient servant,

E. ADAMS,

Chairman, Board of Steamboat Inspection.

